Gleanings in Bee Culture

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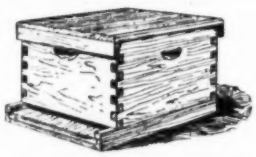

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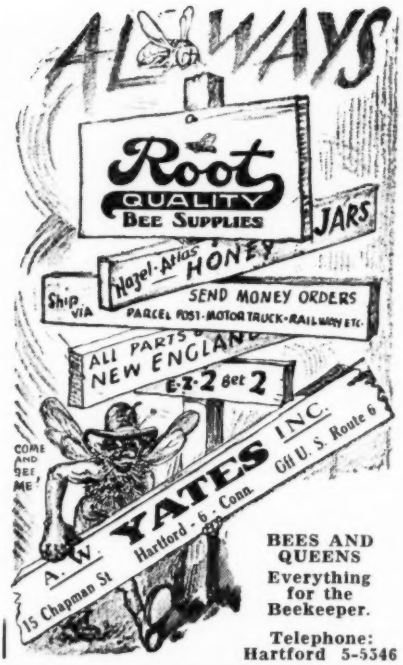

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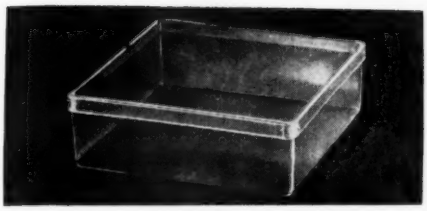

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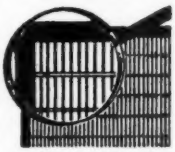

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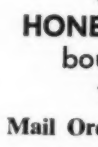

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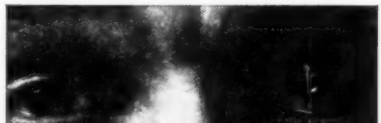

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Monthly HONEY Report

— WALTER BARTH, Field Editor

TEXAS HAS received the best rains in seven years. These rains fell slowly over the entire state for about two days. On a recent trip to the Rio Grande Valley I was amazed to see water standing in the fields. Reports on reservoirs indicate that they were not filling up, and authorities believed that this indicated that the moisture was going into the soil. **BUT** these rains do not end the drought . . . . it only means a good temporary relief. Many more such rains are needed this spring to bring an end to a seven-year drought.

The poor marketing ideas advocated in the Northwest and reported in this column last month are now bearing fruit: a five pound can of honey is selling for 99 cents to $1.15 in Oregon and Washington.

Moisture conditions over California have improved in the last month. Southern California areas have received enough rain to make a buckwheat flow possible. Prospects for manzanita honey in extreme northern California are poor at low elevations and package men are expecting to feed their bees. Light colonies will starve unless fed soon. The recent Malibu fire burned about 25,000 acres of fair to excellent sane and buckwheat pasture where three to 4,000 colonies of bees are usually located.

Snow in Utah, Colorado, and other states in the area is bringing moisture conditions back to normal. Some warm weather has allowed some good flights for bees.

Going east, bees seem to be wintering well in Iowa, Nebraska, and surrounding states. Many are light, however, and will have to be fed to survive the spring. Moisture has been light and temperatures are rather low in these areas. Little snow cover to date. Honey has been cleaned up well at steady prices, and with little honey in the hands of producers the prices remain firm.

Beekeepers in the South are complaining of too much warm weather that is causing the bees to come out of cluster. In Florida, it continues to be warm and dry. Citrus blooms are opening and the main nectar flow should be several weeks earlier than normal. Bees are building up nicely but many will not reach top strength until after the citrus flow starts.

Along the Great Lakes' states bees are wintering satisfactorily. Some warm weather would be welcome to allow the bees a flight. Clovers are in good shape and moisture appears adequate. The demand for honey remains strong.

Bees have wintered well in New York, New Jersey, and Pennsylvania in spite of a cold January and February with few thaws for good bee flights. Unfortunately these states haven't had their usual amount of snow so it is possible that honey plants will suffer for lack of moisture. Demand for retail and bulk honey is good but there is no honey to meet the needs.

In New England, stocks of honey are pretty much exhausted. Bees have wintered well in most areas. New Hampshire has had lots of snow, and that prompted our reporter, J. R. Hepler, to ask if I were envious of New Hampshire weather. No, sir, nothing can beat this mild San Antonio winter . . . I don't miss the North at all.

The beekeeping picture around the country runs pretty much as follows: Bees are wintering well in colder areas but will have to be watched for stores. In early honey flow areas the crop will be uncertain for the bees are either still too weak or the flora has suffered too much from dry weather to yield heavily. Honey supplies around the country are almost completely cleaned up, and for that reason it is difficult to comprehend the localized price cutting now going on in the northwest. Moisture conditions vary from fair to good. On the whole, beekeepers are very optimistic.

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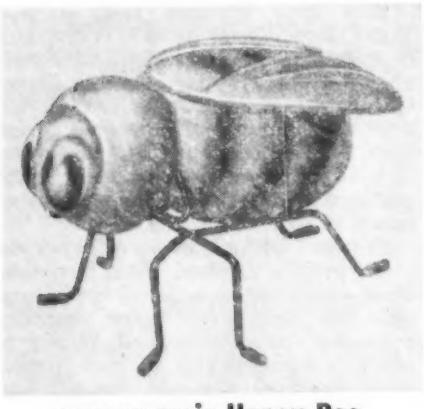

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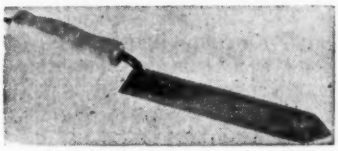

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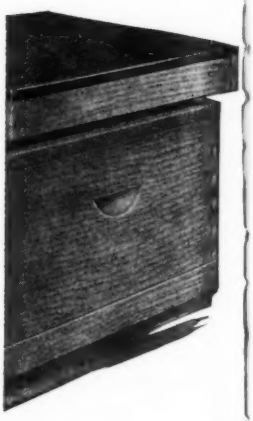

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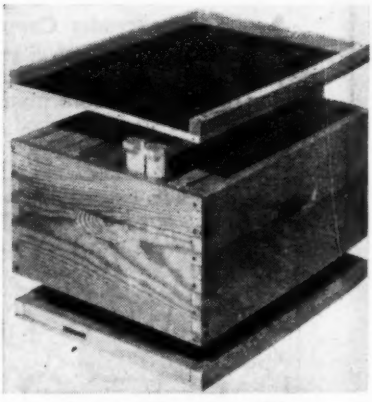

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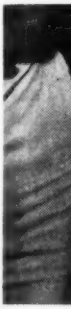

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PRODUCTION

of

Chunk Honey

as practiced by

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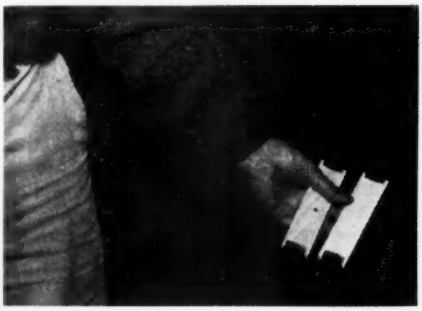


Fig. 1. The end bars are notched out with a dado head to the right width and thickness, for the standard size shallow frame.

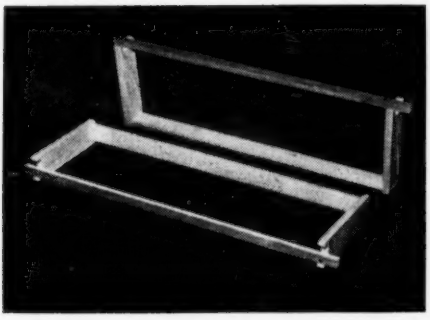


Fig. 2. The frame assembled with just one of the split top bars nailed on. The other top bar is not nailed on at any time.

IN RECENT YEARS there has been quite an increase in the production of chunk honey for various uses. If the increase continues, there no doubt may be some beekeepers interested in producing this honey for the first time and some suggestions along this line might be in order.

The production of chunk honey is in some ways a tricky business if one does not know most of the angles so I'll try to bring out some of these I've found in trying to produce it for the past 25 years. Naturally those producing it for the first time should go slowly so that they make their mistakes on a small scale.

Of Prime Importance is Equipment

With extracted honey, almost any kind of equipment can be used, but with chunk honey, there are limits beyond which one should not go. As to what supers to use, there is only one answer to this and that is the standard shallow supers. They are ideally suited in size from every standpoint, ease of handling, and convenience of use. The combs produced are just about the right size to use with the least waste for production of cut comb and to use in 5-pound pails, jars, and the smaller sizes of containers. The combs and foundation stand up well in handling and are not apt to fall down as in larger supers.

Fig. 3. Placing the foundation in the frame. About ¼-inch of the foundation projects above the top bar and corners of the foundation bent down to hold it in place while the top bar is slid into position. It is extremely important that the foundation is not squeezed too tightly between the top bars. If this is done, it will cut the foundation along the underside of the top bar so that it will eventually break down.

Fig. 4. Top bar in place. The ¼-inch of foundation projecting above the top bar is bent over against the top bar which holds the foundation in place very well. We have tried fastening the foundation more securely by running hot wax between the top bars, but have found this is not necessary and takes too much time.

The next important item of equipment is the frame and I must confess it took me 25 years to find out what the best type of frame is for most uses. At the present time this frame is not manufactured, but in time if the demand warrants, it will no doubt be listed in supply catalogs. As will be seen by the illustrations, the end bars are straight sided with no spacing scallops and notched both top and bottom for the top bar and bottom bar. The reason for not scalloping the bottom half of the end bar is so that the frames will stay in place better in the super. With the common Hoffman type frame, if supers are held sideways the combs buckle and fall out. Also in transporting, the frames are less apt to sway in the supers. The top bars are ⅜-inch thick so the top notch in the end bar is ⅜-inch deep and the bottom bars are ¼-inch thick and the same width as the top bars. The wide bottom bar is very important to protect the bottom of the combs from burr comb damage. With the standard narrow bottom bar, the bees will often, in a good honey flow, extend the comb down below the bottom bar, so that when the super is taken off, the broken comb will be a constant source of dripping honey.

With a wide bottom bar the bees build the comb only to the wood since there is only a bee space between the frames as can be seen in the illustration. While they'll build burr comb below the bottom bar this is easily scraped off when the supers are taken off the hives without hurting the comb of honey. A split bottom bar will not work with chunk honey.

The next item of importance in the frame is the top bar. The split top bar is to my knowledge by far the best method of fastening foundation. As can be seen by the illustration, one half of the top bar is nailed to the end bars and the other half is not nailed, but just simply put into place with the foundation. This makes it a simple matter to clean the frames and replace foundation. The width of the bottom bar and top bar are the same standard width, about 1 1/16th inch wide. The top bar is made of two strips of wood just about ½-inch wide so that it leaves a space just under 1/16th inch for the foundation between. In this respect, it is very important that this space be very accurate. If there is too much space between the top bars, the foundation will fall down; if it is too tight, it will cut the foundation at the top bar. The

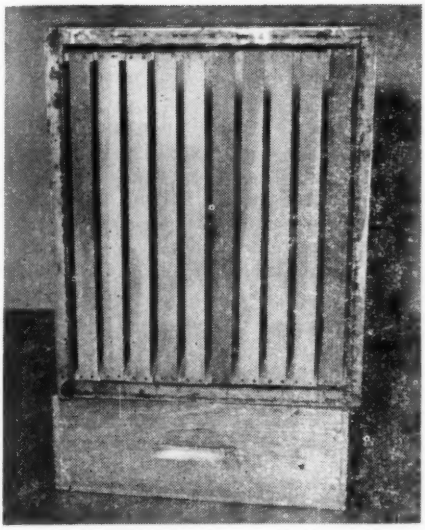


Fig. 5. Bottom view of super showing wide bottom bars of the cut comb honey frames. With just a bee space between the bottom bars, the bees will not build the comb down beyond the bottom bars as they are apt to do with the standard narrow bottom bar.

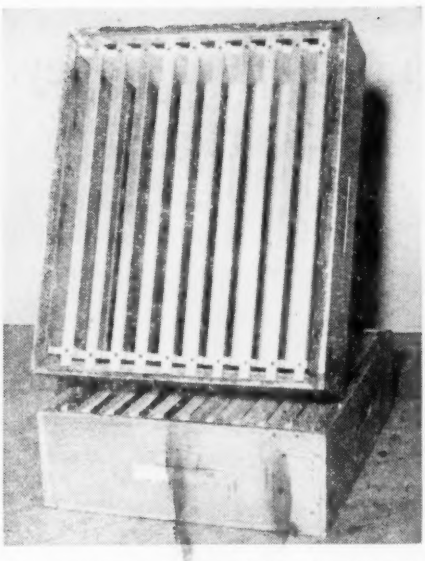


Fig. 6. A super of frames before foundation is put into place.

space should be just wide enough to hold the foundation without flattening the cells of the foundation. If these cells are flattened out, the foundation at the edge of the top bar will lose its strength so that the foundation will sway back and forth and break off.

If the notch in the end bar, and the top bars are correctly made, the foundation can be put into place quickly, easily, and with no danger of its falling out or breaking off. The foundation used is about five inches wide so that it leaves about ¼-inch above the top bar. This is bent over on the corners to hold the foundation in place while the top bar is slid into position. Then the whole top ¼-inch of the foundation projecting above the top bar is bent over to help hold it. This briefly is the construction of the super and anyone that tries it will find it works very well for chunk honey production if accurately made.

A Heavy Honey Flow Essential

It takes a fast, heavy honey flow to make nice comb honey. Also, the honey should be of the type that does not crystallize easily. Supering is another operation in which there are a few tricks. With us, it is important that

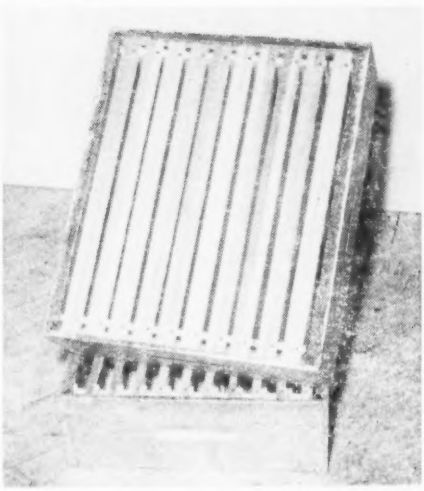


Fig. 7. Top view of super with foundation and top bars in place. Supers fixed in this manner can be handled very well and trucked to the bee yards with very little trouble with foundation falling down.

the chunk honey supers are not placed on top of the food or brood chamber. We always place one or two extracting supers on a hive before putting on the chunk honey super. The main reason for this is to prevent pollen going into the combs, and they will do it if placed next to the brood chamber.

(Continued no page 255)

A One-man Honey Operation

by CHAS. L. STRATTON, Windham, N. H.

CHARLIE ELMENDORFH shown with a patch of European Bird'sfoot trefoil. He seeds trefoil as a sideline and sells the seed to a seed company. Shoreham, Vt., has a heavy concentration of trefoil.

ALTHOUGH good natured, likeable Charlie Elmendorfh of Shoreham, Vermont, refers to his beekeeping operation as "a one-horse outfit", he can put up 2000 pounds of strained honey a day and his crop, depending on the season, varies from 9 to 16 tons annually, wholesaling practically his entire output before he gets a chance to put it up.

By his one-man operation, he refers to the way he sets up his honey processing equipment and his work procedure, all designed to make the job easier for one man to handle alone. Though he uses a dairy barn and works in what was once the milkroom, Charlie believes in cleanliness and the interior has that fresh scrubbed look at all times.

He uncaps into a large galvanized-tub with an electric knife, with the drainings going into the extractor set up alongside. The honey passes from the 24-frame extractor through a pipe in the base into a barrel set underground, the top level with the floor. The honey is strained through a screen as it passes into this barrel.

An electric sump pump, mounted alongside, draws the honey out of the barrel and forces it up through an overhead pipe into a special 285-gallon storage tank in the next room. This

tank holding 3000 pounds is in the packaging room and was made especially to fit the room. The 60's are stored alongside.

Charlie sits on a box, filling the 60's, moving them to one side for stacking alongside the wall next to the outside door without once moving from his seat. This is what Charlie means by a one-horse outfit. Throughout the processing he doesn't move any more than necessary as he has practically a continuous flow direct from the extractor to the storage tank.

Works within 15 Mile Radius

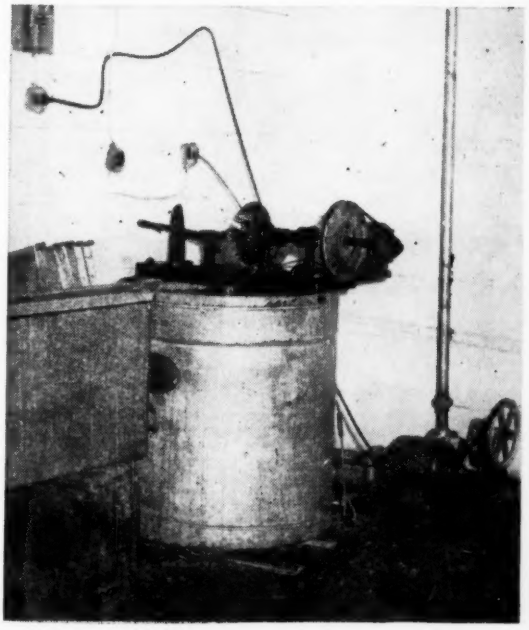
Charlie has around 360 colonies in seven different yards and works within 15 miles of his Shoreham headquarters. The nearest colonies are not less than eight miles away. He claims it is a great country for beekeepers with a lot of alsike, bird'sfoot trefoil, and some basswood. He figures there are 10,000 acres of trefoil in the county producing a very good honey having a rather spicy

Charlie starts work by uncapping into a long galvanized tub.

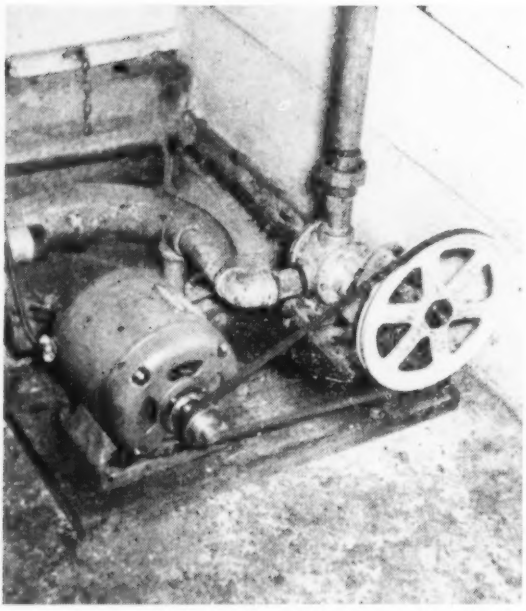
taste which he compares in quality with western sweet clover honey. In Shoreham alone he claims there are about 1000 acres of bird'sfoot trefoil. In fact, he seeds in about three acres of European bird'sfoot trefoil as a sideline and sells the seed later to a commercial seed company.

Though there are beekeepers using both sides of the Green Mountains, Charlie's experience has been the best honey is right in his home town. "The clay soil," he says, "helps yield more nectar than the lighter soils".

Another factor is, there is no fall flow here. He claims goldenrod doesn't yield under 1000 feet above sea level while his yards bordering Lake Cham-



Galvanized tank at right, used for uncapping, drains into the extractor. Extractor drains into a barrel in a cement pit. Sump pump forces honey up through overhead pipe into a storage tank in adjoining room.



Honey drains from the extractor through the pipe at left into barrel set in cement underground pit. Screen covers top of barrel. Sump pump draws honey from barrel and forces it up through pipe at right into storage tank in next room.

Charlie fills his 60's from the storage tank while sitting down. Empties stacked against the wall on his left; full cans on his right.

plain are only 350 feet above sea level. As a rule, he allows himself three weeks in which to take off the honey and extract, as the honey flow in his section is generally over by August 10th.

His section is so jammed with bees that he claims the last beekeeper that moved in had to move right out again as there wasn't any room.

Practically Entire Output Sold Out

Charlie produced a bumper crop of 16 tons in 1954, something that hasn't happened since 1943, with last year's harvest pegged at 12 tons. At one time he produced 10,000 sections of comb honey annually but as he claims the cost of production running about double that of extracted honey, he has practically given it up.

This beekeeper, who has been producing honey ever since he was a youngster, is well known for his honey quality and last season one buyer alone took nine tons. His entire output, except for some mail order, is sold before he starts packaging. He sells in 60's, FOB at the honey house, and cans to be returned.

On his recent 16 ton output he figures his production costs, including all expenses and depreciation with the exception of labor, came to 4.2 cents per pound.

Feeds 4000 Pounds Sugar

Feeding colonies is mighty important with Charlie. Towards the end of September, he feeds 4000 pounds of sugar, adding two parts of water to one of sugar to make 6000 pounds of feed. He fills five and ten-pound pails with the mixture, punches holes in the top of the cans, and places them over the food chamber. He adds a Masonite inner cover having a wooden rim (without the rim it would warp) and tops with a super filled with dry shavings. He completes the set-up with an outer cover. Masonite inner cover has holes and a wire screen so sawdust won't work through. The shavings help absorb the moisture.

Soon as he is done feeding he starts to pack the colonies for the cold winter ahead. Colonies are left in the same location outside during the winter.

"I use 15-pound tarpaper instead of packing cases," Charlie says. "Packing

cases require two men and would have to last 100 years to get your money back. Average case only lasts 20 years. But with tarpaper and careful handling each strip will last three years. Cost is approximately 15 cents per hive for three years."

The paper is wrapped around the hive and the upper section is fitted under the top cover to hold it firmly.

Charlie Elmendorfh has a mighty nice one-man operation and he produces mighty fine honey. He sells what he produces which is a job in itself for many beekeepers.

Charlie stacks supers in an old dairy barn which has been remodeled into a honey house. He keeps the building spotless, and it makes an excellent place to store equipment under cover and to paint it up.

PRICE SUPPORT FOR HONEY FOR 1957 SEASON

THE U. S. Department of Agriculture announced today that honey will be supported during the 1957 marketing season, which starts April 1, at a national average price of 9.7 cents a pound. This is 70 per cent of the current parity price adjusted to the 60-pound container level. For the 1956 crop of honey the national average support level also was 9.7 cents per pound, equal to 70 per cent of parity.

Price support for honey within a range of 60 to 90 per cent of parity is mandatory under the Agricultural Act of 1949, as amended.

The program for 1957-crop honey is substantially the same as the one in effect last year. It provides for farm-storage loans and purchase agreements on U.S. Grade C or better extracted honey which is stored in 60-pound or larger containers in approved storage and is not objectionable in flavor. Beekeepers or cooperative associations of beekeepers can apply for loans or purchase agreements directly to the Agricultural Stabilization and Conservation (ASC) county offices.

In announcing the honey price support program, the Department again urges beekeepers to increase their efforts toward utilizing bees in pollination of important pasture, seed, vegetable, and fruit crops on a remunerative basis. The honey price support program authorized in the Agricultural Act of 1949 is intended to extend interim financial assistance to beekeepers, thus providing them opportunity to market their production of honey in an orderly manner. The Department also emphasizes the importance of continued and intensified activity in improving the marketing and distribution of honey by all elements in the industry.

Detailed information regarding the program, including support prices by classes of honey and areas of production, will be available at ASC county offices in the near future. — U.S.D.A., Washington, D. C., February 18, 1957.

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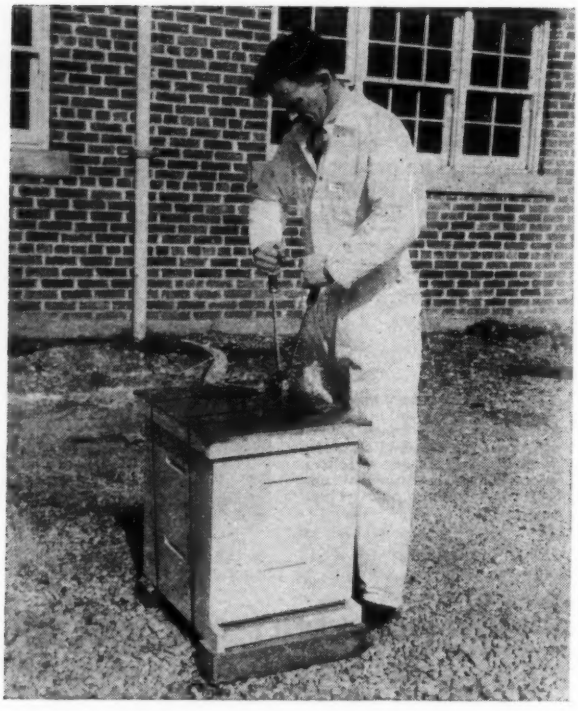
Fastening steel strapping to secure the parts of the hive when moving bees.

—Photo from Dept. of Public Relations, Ontario Agricultural College, Guelph.



Moving Bees

by G. F. TOWNSEND and A. ADIE*

MOST PERSONS will find it necessary to move bees at some time. The preparation for such a move will depend upon the distance the bees are to be transported and the type of weather to be encountered on the trip. Bees may be moved either with or without screens.

Short Moves. When bees are moved for short distances they tend to return to their former location. To overcome this tendency colonies to be moved only a few yards should be changed a few feet at a time on successive days. If the bees are to be moved less than two miles they should be moved either in the very early spring or very late fall, at a time when little flight is taking place, or moved five to ten miles and about a month later returned to the new permanent location.

For moves of only a few miles the boxes and bottom should be fastened together with staples or lath or bound with steel strapping. The bees should be confined by a tuck-in screen at the

* Dept of Apiculture, Ontario Agriculture College, Guelph, Canada, Circular No. 130.

entrance. Where the bees can be completely moved and set down in their new location in the evening before dark, the colonies can be moved without any screening at all.

Long Moves. There are two methods by which bees may be moved long distances — either screened or with the entrances open.

Screening—Provision should be made for screening at both the top and bottom of each colony.

The screen at the top should cover the complete colony and allow a clustering space of two to three inches. Cross supports should be provided to support the cluster above the frames and avoid jarring the cluster from its position. A tuck-in screen should be inserted at the entrance. If the weather is cold the lower entrance may be fastened up tight, using only the upper screen. In hot weather, however, it is necessary to provide both screens.

The bees should be stacked on the truck in such a manner that it will allow sufficient ventilation to all colonies. If non-spaced frames are used the colony entrance should face toward the front of the truck, to avoid swaying of the combs. It is advisable to fasten the three center frames in place by driving nails through the hand holds at each end of the colony. If the heads are allowed to protrude a little, the nails can readily be withdrawn. The weaker colonies should be placed in the center of the load and the stronger ones on the outside. If the day is hot, with no showers expected, the floor of the truck should be soaked with water and arrangements made for spraying water on the load periodically during the trip. Very little honey should be left on the colonies as in case of overheating heavy losses of bees may be encountered. If it is necessary to stop for any reason, the motor of the truck should be left running if possible.

Moving Without Screens. Many beekeepers are making their long-distance moves without closing the entrances of the colony. This method is especially good during very hot weather and in areas where it is not necessary to pass through large cities.

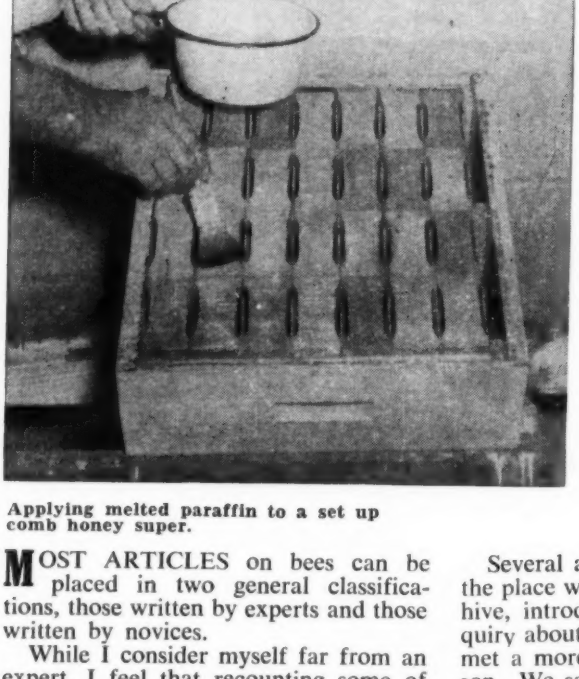
Loading should start so that the complete load will be on the truck before dark. A puff of smoke should be given to each colony before loading, and several colonies should be left in each section of the yard to catch drifters. These may be placed on the load at the last. It is advisable to keep the truck moving until it reaches its destination. Unloading should be delayed until daybreak.

If the trip lasts more than one day, or if a breakdown is encountered, the truck should be driven or towed before daybreak to a well isolated spot and the balance of the journey delayed until evening. The bees will fly freely and return to the load in the evening.

Strapping Co'onies with Steel Bands. Steel strapping as illustrated is the simplest method to fasten colony parts together for moving. Materials required consist of a coil of steel strapping ⅜-inch by .015-inch and bands to fit. Tools needed are a stretcher and sealer to fit the strapping mentioned.

For short moves one band is required while two bands are recommended for long moves. The same strapping material may be used several times by leaving a loose end about 12 inches long.

"Say, this fellow von Frisch really has our number, hasn't he?"



Applying melted paraffin to a set up comb honey super.

What I Think of Bees as a Hobby

by LYMAN E. HAWBAKER,
Fort Loudon, Pennsylvania.

MOST ARTICLES on bees can be placed in two general classifications, those written by experts and those written by novices.

While I consider myself far from an expert, I feel that recounting some of the happenings of the past two seasons may prove encouraging and informative to those beginning or contemplating keeping bees and at the same time interesting to experienced apiculturists.

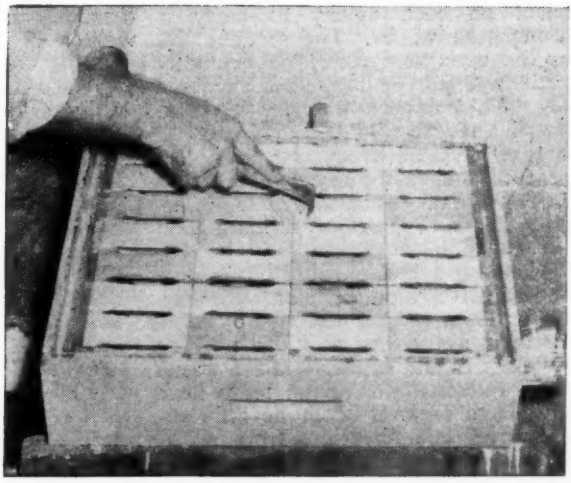
Like most farm lads my previous enterprises ran the gamut from white mice to hogs. Each endeavor brought its financial reward as well as satisfaction which to this day brings back nostalgic memories. Yet in a job where spare hours are few and irregular, those creatures requiring regular daily care were definitely out of the question. It's always been my firm conviction that keeping any type of livestock with less than best of care is inviting trouble. I could, therefore, forget about livestock raising as a hobby or find some type which didn't need daily care.

As I drove home from work one afternoon in early spring, I noticed a man in a nearby town lifting the top off one of his beehives. It occurred to me, then, that perhaps this was just the kind of hobby for which I was looking—one that would serve as a real diversion from my routine work and at the same time add to the family larder

Several afternoons later I stopped at the place where I saw the man open the hive, introduced myself, and made inquiry about the bee business. I've never met a more congenial and affable person. We sat and talked about bees for a couple of hours. During this time, Mr. Diffenderfer, my newly found friend, poured out many of the interesting and, I found out a little later, valuable events in his more than 30 years of beekeeping. I told him then and there that I was going to get a couple of hives, whereupon he invited me to stop in at anytime for advice or help. I've availed myself of his kindness since then and have always felt that an hour with him was worth as much as a week examining hives. (It shou!d be noted here that of all the beekeepers, commercial or backyard variety, I've talked with in the last two years none were unwilling to talk about bees and answer the questions which I posed. Apparently they are all endowed with that something which makes you feel at ease from the first smile.)

I Get More Bees

With interest kindled to a high pitch, my next step was to get bees. My criterion of value was based on prices offered at farm sales, from two to four dollars. Needless to say, I could find no beekeeper willing to part with any of his stock for my idea of its value.



Removing wax from sections before super is dismantled.

A few untended colonies on farms were offered at low figures, but I soon lost interest in them when told they produced very little honey the preceding year. The thought was that if they did nothing for their former owner they would do equally poorly for me. I did-not stop to consider that nothing could be expected from bees that weren't even given supers!

Anyway, spring was fast passing away and still no hives filled the stand I had readied. One day the latter part of May, a friend who knew I wanted bees called and said there was a swarm on a cherry tree in his back yard which he would help me put into an old hive he had in the attic. Neither of us had gloves or a bee veil, but we nevertheless faced the clinging mass of bees and decided to cut off the branch without any type of protection. As I recall, he steadied the step ladder while I cut off the branch and carried it to the front of the waiting hive. No stings were received and the bees went into the hive very readily.

Two days later I had my first hive proudly displayed at home. That was just the start. The owner of three hives near the place where I got my swarm wanted to get rid of them and offered them as well as a complete line of equipment including smoker, gloves, veil, supers, etc., for $12.00. I wasted no time accepting his proposition. Only a few days later a neighboring farmer called and said a swarm came from his house and was clinging to his grape arbor post. I rushed to town and bought a new hive complete with foundation and combs and put in swarm No. 5. Though the cost of that particular colony is higher than any I have today, it's probably the cheapest when everything else is considered. Last summer it made more than 150 comb sections.

In a short time my apiary had grown from nothing to five industrious colonies. Every spare minute was spent watching the bees go in and out or examining the hives. It is interesting now to recall how I puffed a little smoke into the entrance and under the inner cover and then went to work with both hands. Usually I got only one or two combs out before the bees got in their four or five stings which put me to flight. Not until my old beekeeper friend told me that a few puffs of smoke would keep the bees from coming up did I realize the full value of smoke in handling bees. He showed me how he blows a few puffs on the bees as they come up through the combs and ever since I've had no trouble handling them even on bad days.

When that dry, hot summer passed, I took stock of my five hives' store. For me there were 76 sections and suf-

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ficient on each colony to carry it through the winter. The sections left for the bees were travel stained, only partially filled, or blemished in some way. While this was a very poor crop, I wasn't dismayed, for I had a great deal of pleasure from the bees, had plenty of honey for my own use, and above all had gained sufficient knowledge to make me believe I'd do a great deal better the next year.

That fall I had a call from a man who had five colonies which were driving both him and his wife mad by stinging them every time they came within 20 yards of the hives. While I wasn't much interested in buying more bees, I went to look at them nevertheless. The hives had anywhere from six to ten standard size frames in them. Some were good and others were homemade atrocities that had the appearance of an old sway back mare and contained about 90 percent drone cells. I figured the bees must have been good ones to make enough honey to support the drones raised on those combs!

From a dollars and cents viewpoint, those bees were worth very little, but for someone like me who wanted to pass away time enjoyably, they were worth the money asked. These five colonies brought my total to go into winter to ten.

It may be worthy of note here to mention the system shown me by my beekeeper friend to prepare colonies for winter in southern Pennsylvania. He cleans the comb honey super and puts the section holders back in place and the separators on both sides. Springs and wedges are fitted in wherever they will fit without becoming lost. A burlap bag is laid in the empty super, then filled with straw and the bag pulled up and folded over the top of the straw. The super is then placed on the hive under the inner and outer covers. The straw absorbs the moisture from the bees and at the same time acts as an insulator.

All ten hives came through that first winter satisfactorily. Two, however, had fewer bees than the others, so I killed the queen in the smaller of the two and united them by putting a sheet of newspaper between the two hive bodies. Subsequent inspection indicated a satisfactory union, but still the hive wasn't building up very rapidly. The brood was scattered and relatively scarce so I ordered a queen to replace what I considered to be a poor one. This did the trick and at the last inspection that queen was still doing well.

The five old hive bodies bought the previous fall were replaced with new ones. All the good combs were put into the new hives and the bad ones melted down. The colonies suffered from this, of course, but since it was done during the fruit bloom, they soon drew the new foundation into beautiful combs which were filled with worker brood. If there is anything that was impressed on me during the transfer of the bees and replacement of the combs, it was the importance of good worker cell combs for good honey producing colonies. Just as important as a prolific queen seems to me to be the combs on which the worker bee population depends.

With ten hives to look after I found I could always find something pleasant to do. Each time I opened a hive I learned something new. The bees that seemed unusually cross the preceding fall were gentle as kittens and seldom offered to sting, even with my inexperienced handling.

Occasionally I found a colony building up faster than others and building queen cells preparatory to swarming. Such colonies were usually cooled off for a few days by pulling out a couple of damaged frames and replacing them with wired foundation, removing the queen cells at the same time. It was surprising to me, though, how rapidly new combs can be drawn out and filled with brood by a colony that means business.

As spring passed I found the need to continue to watch for queen cells and swarming, none of which bothered me in the least, for I had a good excuse to examine every hive, check its progress, and find more enjoyable hours away from my routine work. By June 5th all hives were in good shape and were storing honey in the supers.

All my honey is produced in combs because local markets prefer it to extracted honey. Because appearance is of such great importance in any food product, I think it might be well to make note of the method shown me by my local beekeeper friend and used to such good advantage by me last sum-

mer in keeping the comb sections spotlessly clean.

Parraffin is melted in a flat pan and brushed on the set-up super. The paraffin forms a very thin transparent coat over the exposed tops of the sections and is easily peeled off with a hive tool or other scraper when the super is removed from the hive. (Be sure wax is scraped off before wedges are removed from super.) There are no bee stains on the outside of the sections, a big factor in a honey display to fussy buyers. It takes only a matter of seconds to apply and remove. In my own particular case no one item was of such importance for the small amount of time involved. Nearly every customer comments on the clean appearance of the honey and would pay, I am sure, five cents a section more for the clean, fresh-looking honey.

Producing Section Comb Honey

Since I kept close tab on each colony, I knew how each was doing and how much honey was being stored. When one super was almost filled, I added the second super and allowed a couple of days to pass before I checked. If bees were working well in the second super, I removed the full one and took out all the sections that were completely filled and capped. Those sections not completely filled or capped I put back in and added empty sections. For my purpose this procedure had a threefold advantage—the cappings were never stained, all supers after the first had baited sections and there was no need to have more than two or three supers for each hive. I got buyers for the honey as fast as I took it off, so there was no problem of treating it to prevent moth infestation.

Summer drought hit our section of Pennsylvania the middle of June and practically stopped all sources of nectar except basswood and blue thistle. Even sumac produced practically nothing. In spite of the drought my nine hives averaged a trifle over 75 sections, one producing 153 filled sections. Besides this each colony was allowed sufficient honey for winter (one super of shallow combs plus fall honey stored in the brood chamber).

Needless to say, I was pleased with this record which was better than most in the county. I spent more time per hive than many others, but as I look back it was time well spent. Besides contentment such as I never experienced in any other hobby, I learned enough to make me believe that I can handle more colonies next year and have a considerably better average honey production. With this thought in mind I've bought more colonies and have hopes of having 20 or 25 when spring arrives.

What do I think of bees as a hobby? For the size of investment I have yet to find anything returning a higher rate of profit and at the same time rendering a genuine pleasure in learning their habits. I'm glad I chose bees and I can assure the world I shall never be without them as long as I have a suitable place to keep them and can give them the needed care.

The Two-Queen System is an Aid in Swarm Control

says **JULIUS LYSNE**, Stockholm, Wisconsin

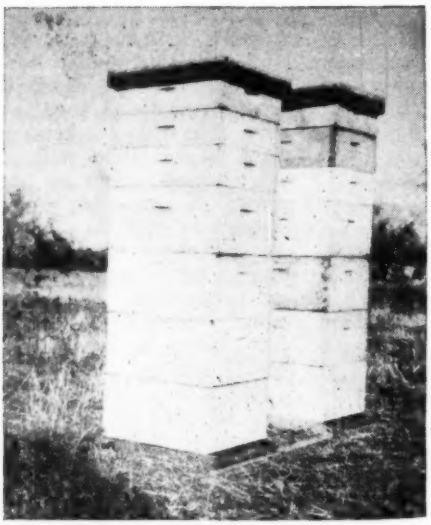
WHATEVER MAY be the advantages and disadvantages of the two-queen system, one thing is clear — two-queen colonies are not inclined to swarm. The good spirits and vigor with which the bees of a two-queen colony work are well known to any one who has given the system a trial. If the two-queen system is to be used as a swarm-control measure only, the colonies may operate as one-queen colonies until about a week before the main honey flow.

It will be assumed that the hives are composed of two hive bodies headed by a good queen one year old or less. Early in June just after the dandelion flow is over the colonies are divided, and the sealed brood and old queen are placed on the bottom. Over this is placed a queen excluder and two shallow supers. On this, place the inner cover with the bee-escape hole covered with wire cloth. On this, place the

(Continued on page 215)

Spring Division of Strong Colonies

by CLIFFORD L. JONES, Topeka, Kansas



IN THIS STATE, as well as many others, much of the increase in number of colonies and replacement of winter losses is accomplished by dividing strong colonies in the spring. This dividing, if done properly, proves very satisfactory as well as profitable.

Colonies that have wintered well may be divided by placing approximately two-thirds of the bees and brood in a hive on a new location, filling the empty space in both hives with drawn combs or full sheets of wired foundation. Some of the bees in the new location will return to the old hive so that the two colonies will end up somewhere near the same strength. A queen is introduced to the queenless portion. This dividing should be done at the same time in the spring that packages would be installed, about April 15 here. These divisions should be watched closely in regard to honey and should be fed if necessary at time of division or any time thereafter until a reliable source of nectar is coming in.

There are other methods of dividing, depending upon whether the beekeeper wishes merely to increase his number of colonies for that year, with the intention of waiting until the next year to reap the profits of his labors, or whether he wishes to harvest a crop from his divisions the same year. I have divided a strong colony into five equal parts, letting each rear it's own queen. They all developed into good colonies for winter, but all stored little or no surplus the same year. This may be a worthwhile venture for one interested in increasing his number of colonies rapidly and inexpensively. A very

strong colony that has wintered well should be used for this method. Two weeks before the divisions are to be made, the queen should be removed so that queen cells will be started. If the queen is a young one worth saving the first division may be made at the time she is taken away by placing her with approximately one-fifth of the brood in a new location. The entrance should be stuffed with grass or leaves to prevent excessive drifting back to the old location.

In two weeks when queen cells have been formed, the other four-fifths may be divided into four equal parts by placing three of them on new stands and leaving one part on the old location. Any honey in the hive should be equally divided also. All the entrances on the new locations should be stuffed with grass to prevent drifting. These divisions should be closely watched as to food conditions and fed if necessary. Under proper conditions these colonies will build up and may store surplus the same year, but even if they only develop into good colonies for winter, it is a good investment of time and equipment, if one wishes to build up his colony number.

If one wishes to be assured of a honey crop, and at the same time make increase, a strong colony may be divided into two equal parts, placing one-half the brood and bees and the old queen in a new location. The bees on the old location are then allowed to rear a queen. The field bees will drift back to the old location and thus help strengthen it while a new queen is being reared. The old queen on the new location will continue right on laying, and in a short time both colonies will be of about the same strength. I have had colonies divided in this manner, each store as much or more surplus than colonies left undivided.

TWO-QUEEN SYSTEM IS AN AID IN SWARM CONTROL

(Continued from page 213)

upper unit having the unsealed brood. Introduce a young laying queen from the South at once to this body. Of course, during this manipulation all queen cells, if any, should be destroyed. The young queen will be just getting into her stride when the flow comes. Of course, an entrance must be provided for the top unit.

It is remarkable how well the bees work and some increase in the crop is certain over what it would have been had the colony been operated as a single-queen hive. Bees from the upper unit will drift to the lower and the bees will be kept very contented. Such a colony will be very strong and push the work in the supers and will almost never develop the swarm fever. Under such conditions the bees will not become dissatisfied with their queen.

The idea of requeening colonies with good queens is an old one. Of course, this meant removing the old queen and replacing with a young one. The young queen did not always prove satisfactory and swarming would result.

By employing the two-queen system the beekeeper has a chance to give the young queen a good trial and should she prove to be undesirable she can be replaced. Thus the beeman will enter the month of August with a tested queen that has shown her vigor. This is of real value. Also requeening with this tested queen is very simple. Simply unite the two hive bodies by placing the upper unit on top of the lower. The old queen will be destroyed.

A good point is that colonies operated under this system are no higher than single-queen colonies and little more time is required. By using top supering and shallow supers no heavy labor is involved.

[This system should work to advantage. During a good honey season it might be necessary to super the top unit since it would be cut off from the lower supers by an inner cover with wire screen over the bee escape hole. After the top chamber becomes strong in bees it would seem feasible to replace the wire screen with a piece of queen-excluding zinc so that the bees, top and bottom, could intermingle, while the queens would be kept apart. The queen above would then perform a valuable service by increasing the population of the two-queen colony and thus in turn would increase the crop of surplus honey, as well as control swarming.—Ed.]

—Photo by W. Wittekindt, Bonn

Selection of a Breeding Queen

by MARJORIE WISE, Los Angeles, California

IT TAKES several months to choose a breeding queen. First examination in the spring usually shows some colonies dead from one cause or another. Then there are some weak and some strong. Among the strong ones there will be a few which upon later examination are foraging ahead of the others. Every beekeeper likes to dream of the day when all his colonies are like these latter ones. Some of the just-average colonies at spring count may later come from behind and make the most honey. So several examinations are necessary to determine which queen is to carry on your stock.

Every serious queen breeder has in his mind a mental picture of the ideal queen. The qualifications differ among individuals. Some breeders have looked entirely for honey production to the exclusion of everything else. Many of the old-timers will tell you that the bees which are mean and cross will produce more honey. We know that they are mistaken in this idea but they usually go merrily on, choosing for breeding queens the ones in colonies which rate tops in producing honey, without caring what color or how cross they are.

There seems to be a hereditary factor in mean bees that persists through countless generations in reproducing itself even though other more desirable characteristics may be entirely lost. Then there is the breeder who chooses queens only for color. The golden Italians were produced in this way. Many strains of Goldens are very fine as their records show, but other strains selected

for color alone are not satisfactory.

Color, however, is very important because it can be seen at a glance without spending valuable time waiting for tests of the queen's suitability for breeding. There are many different strains and colors within each breed of bees. No matter whether you have Italians, Caucasians, or some other breed, you have an idea of just what color the ideal queen should be.

So let us return to the bee yard and, as we work, notice the best queens. Is the colony quiet? Do the bees continue work as though nothing had disturbed them? Remember the old black bees that used to rush outside and drop off the combs, and then sting until you gave up finding the queen and shut the colony up quickly? We have come a long way since then.

Suppose that this is the period of peak brood rearing just before the honey flow. If your previous manipulations have been correct the queens will have plenty of brood. What is the shape of the brood nest? Counting the number of frames of brood is not enough. Granting that you have good worker comb in the brood nest does the brood extend to the top and bottom of the frames and out into the corners? Later the honey flow may crowd the brood nest but just at this time the good queen will have a square brood nest. The poor queen's brood nest will be circular, with the corners not in use. The good queen may be short on bees, so does not have so many frames of brood, but she will use to best advantage the number of frames her bees can cover.

The poor queen will have combs with small cycles of brood. By that I mean there will be a patch of sealed brood in the center of the comb, then surrounding that for an inch or two will be open cells which may or may not contain eggs or brood. Outside of this will be another ring of sealed brood and very likely some open cells which the queen apparently overlooked. I am still speaking of the peak brood rearing period. The good queen will have whole frames of sealed brood with few or even no cells open. In case the brood is hatching, several bees will pop out at the same time. Going on across the brood nest we will find full frames of open brood and eggs.

The good queens seem to have their work so organized that there is no wasted motion. When I watched them at work I always wondered how they found time to lay so many eggs. Of course, the queen has to look into each cell to make sure it is ready. Then she backs down into the cell to deposit the egg just so, and gives a little quarter turn. Then out and on to the next cell. The success or failure of her colony depends upon her ability to produce a great number of bees at the right time. She must be big and strong.

We have found the queen now and she is the color which we consider standard for her breed. Her colony appears to be among the best. She must be good else she could not have built up such a rousing big colony. She may or may not appear larger than other queens of lesser colonies. In fact she may not have an abdomen quite so long as the others. But you may be sure, if you look closely, that the abdomen is deep and she has the capacity to produce a large number of eggs in a given time.

Even though we find what at first appears to be the queen we want, how can we determine whether she will produce daughters like herself? Without artificial insemination we can control only one half of the bee's ancestry. Here is where color is important. If the queen and the bees are the proper color we can be reasonably sure that there has been no cross breeding. Examine the bees closely. Some of the older bees may be drifters but the young bees are sure to belong to the colony. Is their color what you expect in your ideal bee? Observe the drones first—young drones, of course—because the drones are great visitors. They are their mothers' sons and if she is from pure stock their color will be right. Then observe the workers. Their color is influenced by both mother and father. If the mother queen mated with a drone of her own breed and background the color of the workers will be uniform. If on the other hand she mis-mated, part of the workers will be off-color. They still are good workers and probably will produce a good crop.

Our queens are produced from eggs or larvae which under other conditions would become workers. So if the workers from a certain queen are not uni-

(Continued on page 249)

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Greater bee concentration is needed for adequate

Pollination of Clover Fields

by DR. W. E. DUNHAM, Ohio State University, Columbus, Ohio

RESEARCH AT the Ohio Experiment Station plus supporting data from the U. S. Department of Agriculture shows that the day is past when agriculture can depend on pollination from native insects in the commercial production of legume seeds.

Adequate coverage actually requires a much heavier concentration of honeybees from commercial yards. For contrary to general public opinion, honeybees rather than bumblebees are furnishing the bulk of pollination on Ohio's red clover fields.

Evaluates Insects

For a number of years, the Ohio Experiment Station has conducted research studies to evaluate the various types of friendly insects, their relative abundance, and the service they render in providing blossom coverage in fields of alsike clover. Because of the similarity of insect pollination problems among all legumes, the results of these alsike studies show trends that are likely to occur among other legumes.

An average stand of alsike bloom represents approximately 430 million corollas or florets per acre. The blooming period is greatly influenced by temperatures and soil moisture but under normal conditions extends over a period of three weeks. Healthy alsike bloom competes well for the visitation of pollen and nectar gathering insects. The bloom of white Dutch and yellow sweet clovers are its chief competitors. Under normal conditions, full coverage of the bloom requires a honeybee concentration of at least 3,000 bees per acre throughout the major portion of the blooming period.

Weather Has Influence

Weather, obviously an uncontrolled factor, has an important influence on the attractiveness of the bloom to flower visiting insects and the intensity of their flight activities.

In order to make a comparative study of the importance of pollination, two areas were investigated, one where the pollination was largely by native insects, and the other near commercial bee yards where the honeybees did the pollinating.

The nine western Ohio counties where this research was conducted represent a rich agricultural area where intense mechanized farming prevails. Establishment of ground breeding sites by many of our valuable native pollinating insects is impossible because of the rapid rotation system of crop patterns. The present negligible role which native insects contribute to clover pollination as well as their possible future status does not present an encouraging picture.

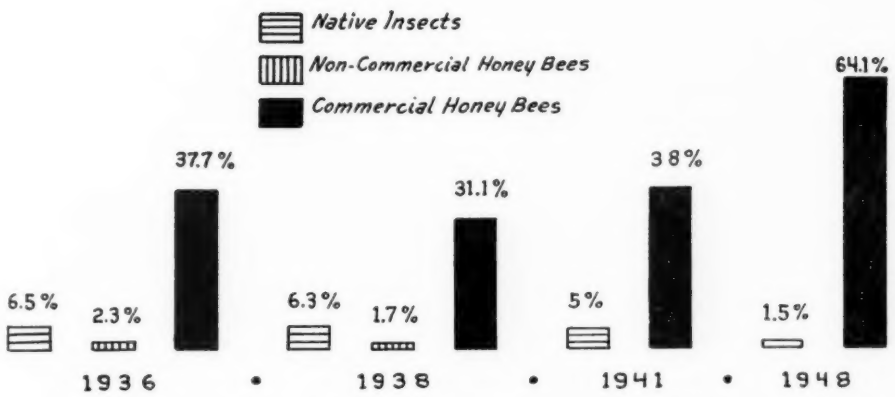
Through the cooperation of county agricultural agents and county bee inspectors, areas were located where commercial yards of bees were absent. The honeybee population available for pollination was entirely from honeybees in trees, buildings and hives of bees owned by farmers. Studies on alsike fields located in such areas were conducted for two seasons in four counties.

Native Insects Play Minor Role

Bumblebees, solitary bees, leaf-cutting bees, flies, butterflies, and beetles were observed collecting pollen and/or nectar on the blossoms of alsike clover. The evaluation of blossom coverage per acre performed by the native pollinating insects was based on sampling 7,380 square yards of alsike bloom. The pollination coverage for four years, when interpolated in terms of maximum seed yields show approximately 35, 34, 27, and eight pounds per acre for each respective year.[1]

Results of the study show the insignificant role the honeybee population in this category plays in pollination coverage. The pollination coverage by honeybees under this category brought yields over a two-year period of only 13 and nine pounds of seed per acre respectively.

[1] Data gathered for the year 1948 by the Federal Bee Culture Laboratory.



Comparisons in this chart are based upon 100 percent blossom coverage with 3,000 honey bees per acre or an average of .62 honey bees per square yard.

It is understandable why the population of honeybees under this classification supplies a very low level of pollination service. Honeybees in trees and buildings are subject to many hazards such as queenlessness, starvation, wax moths, and predators besides brood and adult bee diseases. Actual destruction of such honeybees is followed by the State Bee Disease Eradication Program because of the danger of disease that may spread to healthy colonies owned by beekeepers. Fifty years ago many farms had a few colonies of bees. Today very few farmers own any. Modern beekeeping is a very specialized phase of farming. Unkept colonies of bees deteriorate rapidly.

Commercial Bees Necessary

To determine the level of pollination coverage when honeybees were concentrated in greater numbers, fields of alsike clover were selected from one-third to three-fourths of a mile from commercial yards of bees. These studies covered eight Ohio counties. Results of this intensive study showed that farmers were entirely dependent on commercial yards of bees in near proximity to clover fields. These supplied enough pollinating insects to insure a high enough level of pollination coverage for profitable yields of clover seed. In other words, without commercial yards of bees, the population of flower visiting insects is so low that fields of clover produce low seed yields and in most instances do not pay harvesting costs.

In terms of seed yields, the pollination coverage from increased numbers of pollinating insects of commercial bee yards was indicated by yields of 204, 168, 204, and 348 pounds of seed per acre over a 4-year period. The average yield for the state is only 66 pounds of seed per acre.

The economic factors that determine the presence of commercial yards of bees in agricultural areas are important to all parties concerned. Beekeepers are paid for their bee's services (pollination) by the honey they sell. Honey crops must be profitable to insure stabilized honeybee populations.

Data gathered on profitable honey crops for the year under discussion indicate that concentration of honeybees approaching a 40 per cent pollination coverage will insure profitable crops for beekeepers. At the level of 64 per cent blossom coverage, the honey crop reaches a marginal level and above this level beekeepers will be forced out of business because of the small honey returns.

Moving colonies of bees into alsike fields at the recommended rate of two colonies per acre is nothing more than a control measure to attain full blossom coverage for maximum seed yields. Since this concentration of honeybees is unprofitable for the beekeeper, it is then necessary for the seed grower to pay a rental fee for colonies that will supply a reasonable financial return to the beekeeper for his investment and labor.

Reprinted from Ohio Farm and Home Research, Vol. 39, No. 289, July-August, 1954, Ohio Agricultural Experiment Station, Wooster, Ohio.

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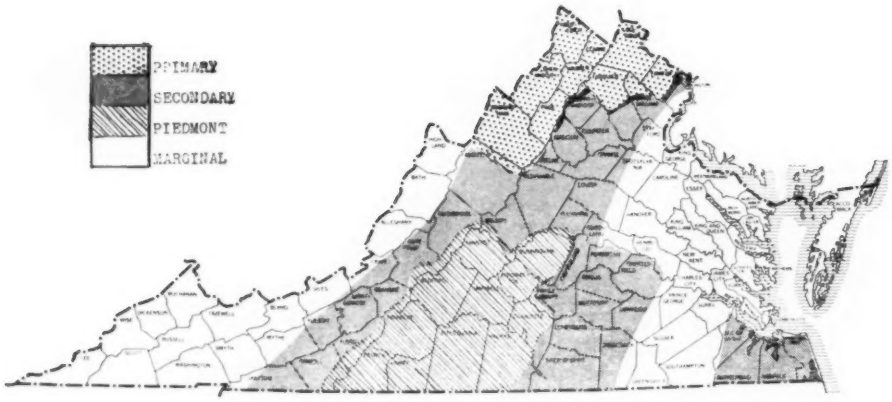

Beekeeping in Virginia

Reported by HENRY W. WEATHERFORD, Vernon Hill, Va.

VIRGINIA — an historic state, — the site of the first English colony in America. The population is 331,863, the area, 40,815 square miles. The climate is fairly mild.

The topography of Virginia is varied. There are six natural divisions, extending across the state from northeast to southwest, nearly parallel to each other and corresponding to the trend of the Atlantic Ocean on the east and the Appalachian Mountains on the Northwest. These divisions are Tidewater, Middle Virginia, Piedmont, Blue Ridge Mountains, Valley of Virginia, and the Allegany Mountains. The divisions to a great extent have different honey flows. Virginia has many beautiful streams. The largest are the New River in the western part, the Roanoke, the James, the Shenandoah, and Potomac, all of which have a great effect on beekeeping and general farming.

The Primary Regions are located mostly in the northern and Piedmont part of the State. The northern counties are Frederick, Clarke, Loudoun, Warren, Shenandoah, Fauquier, Fairfax, Page, and part of Rockingham. Some sections of all of these counties are better than others. The large acreage of orchards in some of these counties cuts down the number of colonies of bees that can be worked here. These counties abound in clover, blue thistle, sumac, and some tulip-poplar. Our largest beekeepers are located in these counties. Most of this territory is over-crowded. Some of the beekeepers have apiaries with over 100 colonies. Most locations would do better with half that number; however, good beekeepers get a good crop four years out of five. Some years it gets very dry in August and September and unless a good supply of honey is left with the bees it is necessary to feed to prevent starvation.

The Piedmont Region consists of the following counties as far as the better beekeeping locations are concerned: Amherst, Buckingham, Appomattox, Campbell, part of Charlotte, Pittsylvania, Halifax, Franklin, Henry, and Patrick. The honey produced in these

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counties comes from black locust, tulip-poplar, clover, and sourwood. The tulip-poplar can be counted on to give a crop nearly every year, but most of the large trees have been cut for timber. The clovers produce some every year unless a drouth hits, and sourwood produces about three years in five. Most of the beekeepers in this region are small. The largest one has around 1,000 colonies, while some beekeepers in the northern counties operate over 2,000 colonies. Our best honey produced in this region is sourwood, which is a delicious non-granulating honey.

The Secondary Region is on the edge of the Primary Region. Most of this region is fair for beekeeping. It seems to change from year to year. I was in what I thought was a secondary region this year, and to my surprise bees were getting a good crop of honey. It seems that the honey flows are changing. More pasture land is being fertilized and put in clover where a few years back cattle was expected to live on what they could find. This region was heavily wooded a short time back, but much of this has been cut. The sourwood trees produce better in these places.

Marginal Regions. There are several of these over the state. They are located mostly in some of the Tidewater counties and some of the mountain counties where the tulip poplar and basswood has been cut. Good beekeepers do produce a fair crop of amber honey in these sections. In fact, if properly handled, bees will do very well in all sections of Virginia. The 1955 U. S. Honey Report says Virginia's average per colony was 25 pounds. That seems very low, and could be raised much higher if the beekeepers would try.

INSTALL YOUR PACKAGE BEES THE EASY AND SAFE WAY

advises J. W. EDMUNDS, Supervisor of Apiculture, Edmonton, Alberta, Canada

SCIENTISTS HAVE KNOWN for some time that the honeybee does not see the color red. This did not have much significance to the beekeeper until recently. Beekeepers who operate on package bees can cash in on this information.

Very few spring days are satisfactory for installing packages. Cold weather is not good, queens and bees may become chilled; warm days are not good, there is too much flight, and drifting occurs. The number of ideal days for installing bees is limited, and the beekeeper who installs hundreds of packages cannot wait for ideal weather.

Mr. Louis Regamey, of North Edmonton, Alberta, Canada, was the first commercial beekeeper we know of to make use of the red light theory to solve this problem.

He installs 800 packages in his warehouse. The windows have tar paper stapled over them, the ordinary light bulbs are replaced with red bulbs (ordinary bulbs painted red with nail polish are satisfactory). The four center frames are removed and bees shaken in. The queen is released directly into the bees, frames are replaced and allowed to rest on the bees. That brood chamber is pushed to one side, and the next package installed. By the time the third package is installed the lid may be placed on the first one; it is then carried away and placed in the darkened garage beside the warehouse.

Entrances are left open, and colonies piled five high. The following day or two they are hauled out to the bee yard. By this time the colony is well established and any weather conditions can do no harm.

To facilitate moving colonies the bottom boards are nailed to the brood chamber so that no shifting occurs; two and one-half inch nails driven from the bottom through the side rails into the super make it easy to remove the brood chamber should this become necessary later.

It is extremely important to have all windows completely darkened or the bees will fly to the windows.

If the weather is adverse the newly installed colony may be left inside for a week without damage being done. Should it be considered necessary, the building may be heated while the packages are being installed but should be left cool if the colonies are going to remain inside for several days.

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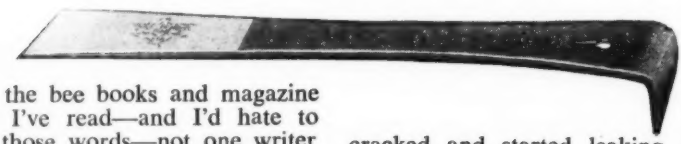
The Hive Tool

by HERVEY ROBERTS
(From January 1957 New Jersey Beekeepers' Association News)



IN ALL the bee books and magazine articles I've read—and I'd hate to count all those words—not one writer has ever cut loose with a cheer for that most useful article, the hive tool. Cheer? There's never been even a feeble "yip". So it seems high time someone pointed out the versatility of that humble hunk of iron.

We got our first hint of what the hive tool can do from the storm sash. Have you ever tried to take down storm sash in April when the rains have swelled them to a weld with the window frames? It's as nasty a fight as you can find on the place, and I used to be boiling mad before I even started. I don't know whether it was inspiration or desperation, but in one of those annual battles, I hammered a hive tool between the frame and sash, yanked viciously, and out came the sash. I still hate storm sash vindictively, just as a hangover, but now I can sneer at them as the hive tool flips them out one by one.

That episode alone was enough to make me feel kindly toward the hive tool. But one day the plaster around the bathtub started to rot and a small piece had to be removed. A trowel was too large for the cramped space, but again the hive tool came to the rescue. Between the straight and angle ends it was no trouble at all to clean out the rotted material. Then when I put on the patching plaster the tool became a miniture trowel for the hard-to-reach places, and after the plaster was dry the angle end quickly smoothed off some rough spots.

Next, an old aquarium started leaking, and it was obvious that the cement had to be replaced. Now acquarium cement is tenacious stuff and some parts of an aquarium are as awkward to dig at as a back molar. But I was learning —the two ends of the hive tool removed the cement very neatly.

By now I was really sold on the hive tool. So when a wall in the basement cracked and started leaking, I didn't hesitate. After the outer part of the crack was chipped larger with a cold chisel, the hive tool was used to clean the crack under the chipped part. Then the tool forced a cement-iron filing water-proofing into the deep parts of the crack before the chipped line was filled via trowel. The combination worked beautifully, and the crack stopped leaking.

From the basement it was no trick to move to the garage. As everyone knows, on the older model cars one usually removes the hub caps with a screwdriver. But designers of the new models have seen to it that life is no longer simple, and all a screwdriver does is put holes in the plastic fake white walls. I learned that the hard way. Well, we can't get rid of the hole we already have in one plastic. But we won't get any more because the hive tool removes hub caps as quickly and easily as if made especially for the job.

We've used the hive tool for scraping blistered paint in places too narrow for a putty knife. We've used it for scraping mud off boots. It's far better than the usual screwdriver for opening wooden packing cases, or for almost any job calling for that small pinch bar that nobody has when it's needed. It has pinch-hit, sometimes successfully, for a right-angle screwdriver. In fact, we now have a family wisecrack that "if nothing else works, try the hive tool!"

This spring we topped things off by giving a hive tool to some friends for a wedding present. Our square dance group gave them 74 mousetraps at the same time but even so, the hive tool was three-fourths serious. And the newlyweds, who thought it was wholly a gag, have since told us they are surprised how often they use it.

Oh, yes. We also use if for working with the bees!

Will the Bees Bite the Dust?

by H. L. MAXWELL
Chairman of Spray Problem Committee of American Beekeeping Federation

THE WRITER has exchanged some 200 pieces of correspondence with people who have some knowledge of beekeeping in the 48 States. I hoped to find a clue or an answer to our urgent problem in Virginia. State Entomologists, Extension Apiculturists, Officers of State Bee Associations and individual beekeepers, big and small, have written.

In substance I inquired:

Are you losing bees due to the use of poisonous insecticides?

What is the situation in your State?

Do you have any controls?

I introduced my inquiry with the statement that I was attempting a fact-finding survey among all of the states, since beekeeping might become untenable in some areas as the result of mass usage of insecticides at the farm level, including fruit and vegetable plantings, and in forest areas. The reports were highly variable, sometimes in the same state, but here is the substance of the reports, based on the roll call of states:

Summary

By states, this spray problem—as regards damage to bees, actual or potential, runs the gamut from no problem to 50 per cent loss this season. The degree of the seriousness of the menace is probably in direct relation to the importance of beekeeping in each state. Aside from actual losses already experienced, the greatest menace seems to be potential as a greater number of sprays, of higher and higher toxicity, on a wider range of crops are used. The situation in the future looks bleak indeed unless the trend is abated, or means are found to cope with it. It is a problem that can best be solved at the state level, or even more locally, where all interested parties are familiar with the existing circumstances. Some states feel they have made progress, but there are uneasy inflections in their reports, and there is sometimes an undertone of political implications. While there is a hint of evasiveness in many of the reports, there is never any attempt to deny or belittle the value of bees as pollinators; in fact, repeatedly the comment is made that a firm effort must be made to protect the bees.

My estimate is that the situation will get worse before it gets better, and I am not optimistic. Cooperate, work together — so runs the dominant theme in the reports. But how can you negotiate, do research, work out compromises, during the very time your bees are being destroyed? Sure, the people who are spraying are sorry, but apologies are no substitute for a livelihood.

As I see it, we have two significant recourses:

(1) Seek an amendment to the federal crop insurance program to obtain coverage of livestock (and thus include bees), so the loss of bees and the honey crop can be insured. Then the beekeeper can continue to take the long risk.

(2) Our most effective weapon is publicity. We are not nearly as helpless, politically, as so many writers seem to think. As beekeepers, we are in the minority, but we have a forceful story to tell; tell it effectively, in simple, factual understatement, with restraint.

Dr. Roger A. Morse, who during the last two years has been with the State Plant Board of Florida, is now with the Waltham Field Station, a sub-division of the University of Massachusetts. His position is Horticulturist and he will conduct research and extension work.

While in Florida Dr. Morse wrote Bulletin No. 10 entitled "Florida Beekeeping" which was published by the State Plant Board of Florida. Beekeepers in Florida can well be proud of this 113-page bulletin. Dr. Morse received his basic beekeeping training in New York State and later specialized in beekeeping under Dr. E. J. Dyce. He got his Master's degree (honey fermentation studies) and later a Ph.D. degree at Cornell University. He is married and has two children.

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Editorials

Importance of Honeybees to Agriculture

WITHIN RECENT YEARS the importance of having hives of bees adjacent to or near some of the cultivated farm crops in order to bring about necessary pollination, has been stressed. Apparently, some growers of legumes, fruits and vegetables are not yet conscious of the important role the honeybee plays in pollinating over 50 farm crops including legumes, fruits and vegetables, each season.

Dr. W. E. Dunham, Ohio State University, in his article, page 218 of this issue, stresses the need for more honey bees for the pollination of clover fields. When we stop to consider the fact that the average stand of alsike clover bloom represents approximately 430,000,000 corollas or florets per acre, we begin to realize the importance of having an adequate amount of honeybees nearby to visit these blossoms and bring about pollination.

We quote the following from Bulletin E-584, prepared by the Division of Bee Culture, U.S.D.A., "The Dependence of Agriculture on the Beekeeping Industry—a Review": "The service rendered to agriculture by the beekeeper in furnishing the public with pollinating insects has probably been overlooked. In too many cases his only reward has been his honey crop which, until war years, he had to dispose of at depressed prices. In addition, his bees were frequently killed through the indiscriminate use of insecticides by the very man he was benefitting. Under such circumstances, since the beekeeper's interest was not safe-guarded by sufficiently high honey prices, rentals, or a subsidy of any kind, the keeping of bees has declined in many communities, and this in turn has meant decreased yields for the grower of insect pollinated crops.

"The fertilization of flowers is so imperative that beekeeping must be carried on to maintain profitable agriculture. Owing to conditions brought about by the recent war, of which increase acreage of insect pollinating seed crops is but one, safe-guarding the beekeeping industry has become doubly urgent. Beekeeping can be mastered only through years of experience. It cannot be learned as a trade is learned, and there is no floating population of persons seeking employment in beekeeping. The fact that bees have a propensity for stinging, discourages many people from keeping them, and only certain individuals possess the proper temperament to be beekeepers. For these reasons every experienced beekeeper should be encouraged to continue with his bees. It may even become necessary to subsidize the keeping of bees, since there is no practical substitute for honeybees in the transfer of pollen from flower to flower and from plant to plant."

It is apparent therefore that the number of hives of bees in the U.S. instead of decreasing, as it has the past few years, should increase in order that there may be an adequate amount of honeybees available to perform the necessary pollination service.

Don't Hang onto Honey Crop Too Long

THE OLD PROBLEM of gauging supply to meet demand is still with us, especially in the honey business. This past season rather sizeable lots of honey were held, creating a shortage of honey in early fall. This resulted in some honey dealers, packers and retailers curtailing their sales by not soliciting the business available. At present, some of these producers are dumping large quantities of honey on the market, creating a rather depressing effect on prices.

One honey dealer puts it this way: "If the dealers and producers were to work together to get the price of honey to a level where it is profitable to produce, people who are in the selling end should be given a chance to do a real selling job when there is a market for the honey. Being pennywise and dollar foolish on the part of beekeeepers is what has kept the price of honey below the level of other commodities."

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There really should be better cooperation between honey producers and honey dealers in order to maintain a reasonable price level and a steady flow of honey from producers to consumers.

It's "Honey for Breakfast Week" — Again

WHAT AN OPPORTUNITY beekeepers over the country will have during the week of April 21 to 28, to focus attention on "Honey for Breakfast Week," as sponsored by the American Honey Institute. If all beekeepers and their families throughout the country would set a good example by actually using honey for breakfast, as a sweetner in coffee, breakfast food, toast, waffles, hot cakes, grape fruit or what-have-you, this would make quite a difference in honey consumption throughout the country.

Some beekeepers do not make a practice of having honey on the table during each meal. Some say the youngsters would dribble it over the table cloth or their clothes, when transferring the honey from the dish to the plate. At present no such alibi can be offered, since we now have suitable dispensers for honey.

If beekeepers do not use honey or bring up their children to use it, they cannot become enthusiastic about honey as a food.

Referring to page 242 of this issue under the heading, "Comparison of Food Value", we find that the energy value of honey is about 1485 calories per pound compared with the energy value of eggs, about 635 calories per pound; beef ranges from 545 calories to 1100 per pound. On page 230 of this issue, the warning against excessive use of sugar should, we think, be taken seriously.

It would appear that beekeepers and those connected with the beekeeping industry do not realize as they should what a wonderful product we have. If we would actually become enthusiastic about it and proclaim its virtues from the housetops, there soon would not be enough honey to go around and it would be necessary to increase production to supply the demand.

This Honey-for-Breakfast Week is an opportunity for beekeepers to get behind their product in order to increase the use of honey on a national scale. Beekeepers who have their honey in grocery stores could make a window display, using cards and other printed matter supplied at a nominal cost by the American Honey Institute, Madison, Wisconsin. Let's get behind this Honey-for-Breakfast Week.

The Flight of Drone Bees

IT SEEMS SAFE to say that comparatively little is known about drone bees. Some work done by E. Oertel of the Entomology Research Branch, Baton Rouge, La., from 1952-1954 and recorded in an article, "Observations on the Flight of Drone Honeybees", appearing in September 1956 **Annals of the Entomological Society of America** contains some interesting observations.

While an occasional drone was seen to fly in the forenoon or after 4:30 P.M., the maximum number of flights occurred between 2 and 3 P.M. A drone may fly out more than once on days favorable for flight. The flying speed of a drone is from 5.7 to 10 miles per hour.

Drones were taken from hives and released at different distances from their hives. No drones released two and one-half miles from the hive returned to it. Some drones released one and one-half miles from their hives did return. The greater the distance from the hive the drones were released, the fewer returned.

Worker bees, according to von Frisch, use polarized light and the position of the sun in orientation when gathering nectar and pollen. With drones the position of the sun apparently is not a guide.

Drones that had not flown averaged 220 mg. in weight, while drones that had returned from a flight weighed 185 mg.

In a recent experiment it was found that at least one mating occurred when the hive containing a virgin queen was six miles away from the hive that contained the drone. It is not known how far the queen flew to meet the drone.

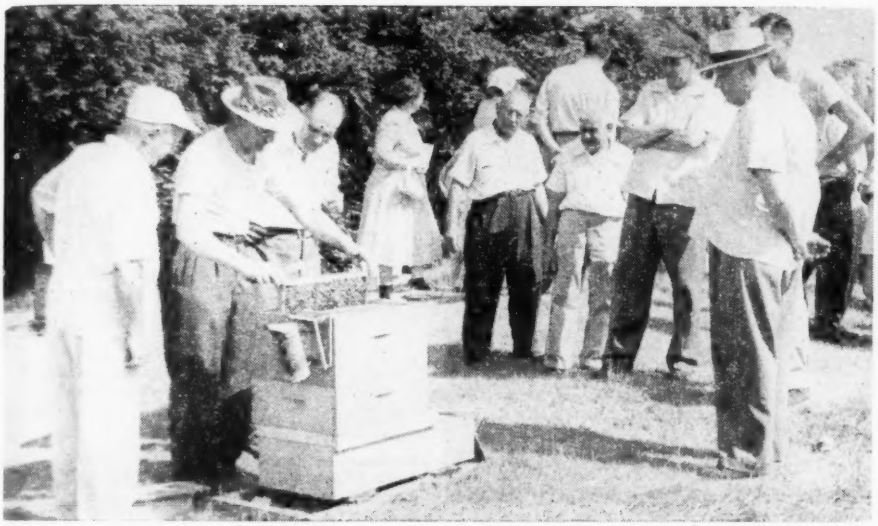
It would appear then, that apiaries containing different races or strains of bees should be over six miles apart to prevent the races or strains from becoming mixed.

NEWS

Presentation to Sir Edmund Hillary of honey for the New Zealand Antartic Expedition, by the N. Z. Beekeepers' Association. Left to right: E. D. Williams, Vice President N. Z. Beekeepers' Assn.; A. Helm, Sec.; Ross Sea, Committee; Sir Edmund Hillary; J. W. Fraser, Pres. N. Z. Beekeepers' Assn.; R. A. Fraser, Sec. N. Z. Beekeepers' Assn., October, 1956.—Photo by National Publicity Studios, N. Z.

Dr. Otto Mackensen, apiculturist at the U.S.D.A. Southern States Bee Culture Station, Baton Rouge, La., removes the finished queen cells after 10 days in the finishing colony, for introduction into nuclei.—Photo by Forsythe.

REEL



BEEKEEPER'S FIELD DAY: Little groups like this one watched their favorite at a cautious distance during the queen finding race. The winner received credit cards for several new queens. Contests like this one give beekeepers a chance to show their skill.—Photo by Charles L. Stratton, Hollis, N. H.

W. J. Nolan, USDA apiculturist at the Beltsville Research Center, cuts up the pollen-soybean cake he has prepared for the experimental bees in the Department's apiary. And from the bees' response to this supplementary feeding, the Beltsville apiculturists will work directions for beekeepers.—Photo by Forsythe.

XUM

Let's Talk about Honey Plants

by HARVEY B. LOVELL,
University of Louisville

Soybean in blossom. — Photo by H. B. Lovell.

MR. MORRIS BLACK brought me two kinds of honey at the February meeting of the Kentucky Beekeepers' Association. One was a jar of aster honey which had crystallized with a fine grain. Like most of the southern aster honey it has a rather distinctive odor which to some is rather unpleasant, but the flavor is fair to good. When bees are collecting aster honey, the whole bee yard takes on a strong smell. Beekeepers sometimes think they have foul brood and call their bee inspector. After the honey is well ripened and capped over the odor largely disappears. American beekeepers could well feature crystallized honey more frequently in their sales. One of the complaints about the use of honey on biscuits is that it drips too freely. Crystallized honey does not have this fault. At least one large cooperative is featuring creamed honey which is said to be selling very well. Others mix crystallized honey with butter to make honey butter. This concoction has to be refrigerated to keep it fresh.

Coral berry or buckbrush (Symphoricarpos orbiculatus). Mr. Black's other honey was from this source. It is a medium amber with a pleasant, distinctive flavor. In hilly regions of Kentucky and many adjacent states, coral berry is one of the best middle summer honey plants, generally blooming right after the clover season and so greatly extending the honey flow. It has great clusters of bright red berries along the woody stems which remain on all winter. I have a dozen bushes in my yard and the berries are still just as bright red looking as they were last fall. It is therefore perfectly possible for a beekeeper to scout his county or adjacent counties during the winter for a possible buckbrush location the following July. When in bloom, the flowers are so small and inconspicuous that they escape the eye of the average beekeeper.

Soybeans. In a recent letter J. M. Amos, Extension Entomologist for Virginia, asks if I have any information on soybeans as a honey plant. He continues that a beekeeper in South Carolina told him that they yielded nectar in one of two counties in his state. Amos himself once saw bees working frantically on soybeans in great numbers in Tennessee, but it was only a small field. "We grow a large quantity of soybeans in southeastern Virginia and I wonder how the possibilities for honey would be if the right varieties were grown."

Arkansas. Vaughn Wilson of Bethesda obtained honey from soybeans in Arkansas in 1949 or 1950. Only certain varieties yielded. J. H. Davis, the

(Continued on page 249)

In Time for Easter

by MRS. BENJ. NIELSEN
Aurora, Nebraska

Honey orange bowknots for the Easter dinner. — Photo courtesy of Kellogg Co.

HAM IS TO Easter as bacon is to eggs. And, if it is treated with a honey glaze it is superb. Start with a little picnic ham or use a fully-cooked variety, and the use of honey will make the piece de resistance! You may spread the ham with honey after it is scored, or you may prefer to blend the honey with fruit juice and baste frequently as the meat cooks. Pineapple juice and apricot nectar are especially good for this honey glaze treatment.

Of course, you will have to have some honey-way sweet potatoes with the ham. And how about a spot of cole slaw with a batch of fragrant honey rolls? Sounds good? Um!

Honeyed Sweet Potatoes

Cook six medium-sized sweet potatoes. Remove skins and mash. Blend ½ cup drained, crushed pineapple, and ⅓ cup honey. Stir into mashed potatoes. Place in greased casserole, dot with marshmallows. Bake in moderate oven, 350 degrees F., until marshmallows are melted and slightly brown, about 40 minutes.

Honey Orange Bowknots

One cup milk, ½ cup shortening, ⅓ cup honey, 1 teaspoon salt, 1 cake compressed or 1 package dry granular yeast, ¼ cup lukewarm water, 2 eggs, well-beaten, ¼ cup orange juice, 2 tablespoons grated orange rind, 1 cup whole bran cereal, and 4½ cups sifted flour.

Combine milk, shortening, honey, and salt in large mixing bowl. Stir until shortening is melted and mixture is lukewarm. Soften yeast in water. Stir well and add to milk mixture. Add eggs, orange juice, orange rind, and cereal; mix well. Stir in flour. Cover and let stand about 10 minutes. Turn dough out on lightly floured board; knead until smooth and satiny. Place in greased bowl. Cover and let rise in warm place until double in bulk. Punch down. Roll out dough on lightly floured board to ½-inch in thickness. Cut in strips about 10 inches in length and ¼-inch wide. Tie each in knot. Place on greased baking sheets. Cover and let rise until double in bulk. Bake in moderately hot oven, 400 degrees F., about 15 minutes. While warm, frost with Honey Orange Frosting. Yield: 2 dozen.

Honey Orange Frosting

Two tablespoons orange juice, 1 tablespoon grated orange rind, 2 teaspoons honey, and 1 cup sifted confectioners' sugar.

Combine all ingredients; beat until smooth and of spreading consistency. Brush over bowknots while still warm.

Honey Cole Slaw

One medium-sized head cabbage, 2 tablespoons honey, 1 cup sour cream, ¾ teaspoon salt, 1½ teaspoons celery salt, 1 teaspoon vinegar, and dash of pepper.

Shred cabbage finely and chill. Combine honey, sour cream, salts and pepper, mixing thoroughly. Pour over shredded cabbage and toss well to coat. Serve at once.

XUM

FROM Foreign LANDS

Translated and Edited by ERIKA BARTH

Language of Bees.

THE ANSWER to the question: Is there a direction of up and down in the language of the bees?, is NO, since a height direction for bees would be superfluous.

Z.f. vergl. Physiol. 35/1953

Warning Against Excessive Use of Sugar.

DR. MOREAUX, who gave a very good report on the value of honey at the Beekeepers' Congress in Rouen, backs his thesis with a number of other opinions that warn against the damage excessive sugar consumption can inflict. The American statistician Parker says: "The higher the sugar consumption the higher the percentage of cancer. It is worth mentioning, that countries with the highest white sugar consumption, namely America and the Scandinavian countries, have the highest cancer rate. Parandel and Cance believe that cancer is a sugar-fed diabetical form of tumour. Abstinence from sugar and highly sweetened foods will greatly help in healing this condition. On the other hand, foods containing natural sugars, such as honey, are safe."

The American physician Dr. Sandler declared: "The reason America has so many cases of poliomyelitis can be blamed on the foolishly high consumption of sugar and candies in this country." This, consequently, is all the more reason why natural sweets found in honey and in ripe fruit should be preferred to sugar.

L'Abeille de France. Dec. 1955

Luring Swarms.

TO LURE a swarm into a new hive one usually baits it with old filled frames. Unfortunately, wax moths are also very interested in this dark comb. The French beekeeper Paul Bernier has now tried to use a frame with only a beginning strip in the new hive, and the success is the same as before: the swarms moved in. For the rest, the bees already were acquainted with the place as being "attractive to bees".

La Belgique Apicole, Nov. 1955.

How Old is the Custom of Clipping the Queen's Wings?

IN 1745 a notation by Schrot was made as follows: Many clip the queen's wings. This is done when she again has left the hive with her colony. It does not hurt her, only one must be careful not to squeeze her.

Der Oesterreichischer Imker, March 1956.

Bees and Plums.

THE PLUM depends upon insect pollination, and observations in the Auckland district for several years showed that honeybees accounted for 99 per cent of all insect visits to plum blossoms.

Unfortunately the nectar in plum blossoms is inclined to have a low sugar concentration and the pollen in some varieties is not popular with bees, so where alternative sources of nectar and pollen are available the plums are often neglected.

Trial applications of sugar sprays—20 to 40 per cent solutions of sugar and water—were given to the trees in blossom over two seasons with the object of attracting honeybees. The applications were so effective that in one trial visits by bees rose from a previous average of six per cent to 300 and later 500 more. Further experience showed that it was not necessary to spray every branch, or every tree, to get satisfactory results.

Naturally many other factors also affect the success of the fruit crop but the trials were encouraging as far as they assisted the process of fertilization.

New Zealand Beekeeper. November 1956

Live and Learn

by Propolis Pete

ONE OF THE axioms of beekeeping is that bees never do anything invariably. In simple language this means that you can't depend upon them to do what you think they are going to do, or what the books say they should do.

Here's a-for-instance: Late last summer I hived a swarm, as I have told you before, that was destitute of stores and weak in numbers when packing time came. They had been robbed out, and I couldn't find any honey at all in the hive. In January of this year, I went to get the hive, and to my astonishment found them still alive. A couple of days ago I got a can of cyanogas and went to get them so that I could use the combs for new packages this spring. This time they were dead, so I didn't need the cyanogas.

But I did find that even though there wasn't any honey around where the cluster had been, there was quite a bit, say 15 pounds, in the outside combs. These combs were empty last fall, and the bees must have gathered that much honey from the late flowers that bloomed after the middle of October. The only thing that I have ever seen blooming at that time is the garden "mums" and a weed that I think is a species of charlock that sometimes comes up in empty cultivated fields after the crop has been harvested. I have seen that blooming as late as Thanksgiving Day, but have never seen the bees working on it.

If the handful of bees in this little nuc could gather that much honey after the season was over, I imagine that the going colonies must have put up quite a bit of stores from the same source. I would not depend upon bees doing that invariably, but it might be an explanation for some of the times that I have been surprised by well-wrapped weak colonies living through the winter.

Now is the most exasperating time of the year. There is snow on the ground as this is being written, but the days are getting longer. Already we have supper by daylight, and every day around noon when the sun is out, the bees fly around some. The snowdrops are blooming through the snow, and on mild days the bees sniff around them. But there is nothing that you can do, excepting to put on feeders if you think that maybe you should think they need help. At this time, dry sugar is the best bet. Syrup in an overhead feeder won't hurt them, but might stimulate them too much for now, so dry sugar spread on the top of the inner cover, with just a little opening for the bees to get at it does the trick neatly. You can do that without disturbing them, or getting them dangerously hopped up. If they don't need, they won't take it. On the other hand if they do need it, it may be the difference between a dead colony and a live one.

Pretty soon now there will come a nice warm day that will let me take a quick peek. The way I have my bees packed this year, I can lift the inner cover and see what they are doing, as well as how much they have in the way of stores without guessing, or tearing the whole pack apart. So far I haven't been able to do it. Whenever the day was suitable I had other things to do. When I had the time, the weather was against me. If my hunch is right, they will look better than I have ever seen them at this time. I know that they had plenty of stores to begin with, and if that late flow that surprised me in the nuc I mentioned above did what I think it did, they should be well off yet.

It won't be long now, even though time seems to drag as it rushes by. Before you read this, my packages for this year should have been installed, early pollen should be coming in, and a lot of new brood should be on the way. Somebody told me once that when the sun starts its return journey, spring advances northward at the rate of 15 miles a day. It may be so or not, but it can't come too soon for an eager beekeeper.

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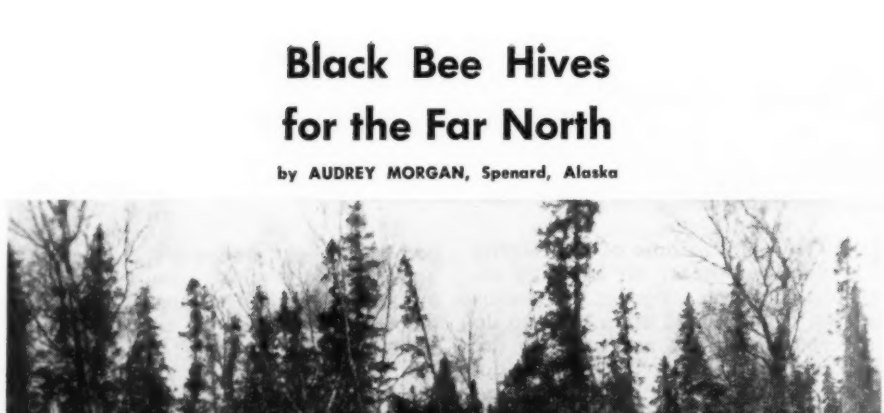
Black Bee Hives for the Far North

by AUDREY MORGAN, Spenard, Alaska



Package bees end their 2,000 mile air journey by going "Piggy Back" over impassable roads to their black homes near Anchorage, Alaska.

PREPARATIONS ARE under way for the fourth year of beekeeping in Alaska. Each year there have been many changes in management, but the color of our bee hives is perhaps the most striking as well as profitable.

The first year we operated one experimental colony, painted white, and managed as my husband had his high school agriculture apiary project. That fall there was no surplus honey.

Beekeeping was a completely new and fascinating experience for me; and as I watched and studied the bees I asked, "Why white hives? Wouldn't black be much warmer and save the bees a lot of work generating heat?" The next spring I painted the hive black, and soon after installing our package bees we noticed that they seemed to venture out at lower temperatures than they had the previous year. The season ended with 70 pounds of delicious water-white honey.

Last year we set up seven black hives but as we added supers we used some white and some black. We found the temperatures of the light hives much cooler, and the bees from these did not go to work as early in the mornings nor work as late in the evenings as those in the all black hives. At the end of the season the difference in honey production was unmistakable. We are convinced that black is the proper color for hives in the far north where we are lucky to get a dozen days of 70 degree weather in an entire summer.

Life Lessons from the Bees

by BRUCE MOREHOUSE, Montevideo, Minnesota

OUR ATTENTION is frequently called to the thrift and foresightedness of honeybees in providing for the season of no flowers and cold winter days. Such a lesson might lead us to start a savings account or take out more insurance.

Also, above the value of honey is a greater benefit, of pollinizing for seed production. Thereby pends a lesson in service, even without praise or other rewards.

There is another lesson bees teach the discerning mind—a lesson in immortality. When you look at a frame of pearly larvae do you ever think that they have had a physical birth from the tiny eggs and that they will experience a second birth from the cells?

Could it be this is a type of man's existence, born physically and later born again of the spirit? The divine Son of God told us we must be born again. Is our physical existence a metamorphosical period for the birth and development of the spiritual life?

Larvae ask only for their daily bread and comfort, supplied by a Providence greater than they. Imprisoned by the cells they must await the quickening call to a higher life they will some day know soaring among the trees and sipping nectar of flowers. Adult bees cannot tell the larvae what their future life will be, and it is impossible for human spirits in that transformed life, to convey to us the unseeable wonders of our beyond.

Men are not quite as unconscious of our future destiny as the little larvae. The big difference and thing we do know is Who holds the secret of our future. The same Creator, the Alpha and Omega, holds the future for us both.

Larvae fed on unbalanced or starvation diet grow into small and deformed bees. They can never fully correct the physical disability. Only larvae that have sufficient and wholesome food can fully develop to go on into their higher life.

Likewise, our second (spiritual) birth must be nourished and directed. When men feed their physical or spiritual bodies with false, unbalanced nourishment, they emerge the product of that food, going on with what they have built. In the degree of that development there is a glimpse of the differentiation that may exist then, even as it does here.

Beekeepers, who live so very close to nature, have ample opportunity to observe some of the hidden secrets of an All-Wise Creator. As we learn the truth about those hidden secrets we become free from some of our misunderstandings. By adherence to the Christ-given rules and by faith in His promises of a future existence more glorious than men can comprehend, our spiritual bodies shall enter that assured life now faintly glimpsed yet so near and so real.

For those who understand this parallel and humbly accept this personal responsibility, death has no sting, the grave no victory.

[The above seems appropriate for the Easter season.—Ed.]

"Maybe th' queens out calling. Ya can't expect her to lay eggs all th' time!"

New Fruit Disease Control is the "Bees' Knees"

by BRYAN KILLIKELLY, Rahway, N. J.

TO PREVENT orchard pollinating bees from spreading fireblight to apple and pear blossoms, Dr. Robert H. Daines, plant pathologist at Rutgers University has come up with the novel idea of making the bees carry the cure instead of the disease. He powders them with a fireblight-killing antibiotic, streptomycin, by means of a simple wooden trap inserted at the bee hive entrance. The bees can't get in or out without walking through the streptomycin, which clings to their bodies

Dr. Robert H. Daines of Rutgers University points to his unique bee trap used to control fireblight disease of apples and pears.—Photo from Merck & Co., Inc. Chemical Division, Rahway, N. J., taken by Daily Photo Service Co., Linden, N. J.

ready to kill or inactivate any fireblight-producing bacteria they might pick up as they gather nectar.

Dr. Daines and his associate, Dr. Michael Szkolnik of Cornell, succeeded in reducing fireblight infection of pear blossoms from 40 per cent to less than one per cent in controlled greenhouse tests. The bees did not do as well in preventing the disease in apple blossoms. The scientists attribute this to the difference in flower structure. The bee can land in the shallow nectar cup of a pear blossom feet first. The apple blossom, however, isn't so accommodating. Unlike pear blossoms, apple blossoms have stamens that are tightly clustered together around a deep calyx cup, which makes it more difficult for the bee to get into with his streptomycin-covered legs.

The plant scientists are attempting to solve this problem by nailing a cheese cloth net on the upper section of the trap and filling it with streptomycin dust. Now the bees won't only have to stomp through the stuff, they will have to rub against it in the net and take a streptomycin dusting all over.

Dr. Daines said the method is scheduled to be tested in orchards. Merck & Co., Inc., in nearby Rahway, N. J., which makes the streptomycin product Agri-Strep for plant disease control, will provide technical assistance and assay work as it has since the project began. If it works out as well as it has in the greenhouse, pear and apple growers may expect considerable saving over the present method which calls for at least three sprayings during the growing season.

Dr. Daines and his associates have tried several other bacteriocides, some equally as effective, but found that streptomycin was the least harmful to pollen. He also pointed out that the principle of putting bees to work as disease control agents need not be limited to fireblight. It can be applied to control other diseases of plants pollinated by bees as well.

Honey for Breakfast Week

April 21 - 28

by HARRIETT M. GRACE, Director of American Honey Institute

AH, HOW BLEST is the honey merchant with a product to sell that loves to be sold! For if any food can claim the human characteristic of friendliness, our honey can; it likes to be combined with other foods.

Such a gregarious nature makes honey easier to sell. We can tell the customer how to use honey as a sweetening agent, as a moisture-retainer in breads and cakes, as a quick energy food. But even better we can boast of honey's natural affinity for other foods, and the way it blends with many flavors.

Let's make a short run-down of honey's closest friends:

Milk and honey are inseparable pals. With the adult world finally coming to the realization that milk is just as necessary in their diet as it is in their children's, adults, too, are seeking ways to glorify the glass of milk. That tablespoon of honey added to the morning milk is a real pick-up. Or honey milk toast makes an ideal lunch for all members of the family.

Who hasn't heard of the charms of honey eggnog—this is particularly good when used on a reticent milk drinker. And honey sundaes are delightful on a hot summer day.

What about **honey and the citrus family?** A grapefruit hollowed out in the center with a dab of honey for a crown is such an old favorite that it is almost considered improper to serve the grapefruit alone. Some folks go as far as to blend the flavors by broiling it a few minutes.

The simple honey and lemon juice salad dressing remains at the top of the list in every home where fruit salads are used a lot. A bit of honey in the daily orange juice will sweeten a tangy orange. Lemonade sweetened with honey, lemon and honey sauces for Brown Bettys, hot gingerbread, and cottage pudding—all strike the homemaker's fancy.

Honey and vegetables? Sure, why not? Glaze your garden-fresh vegetables and make them **look** just as good to eat as they **are** good to eat. It is so simple to do by adding a little honey at the end of the cooking process. This is particularly good on beets, carrots, onions, sweet potatoes, or other root vegetables. Cole slaw made with sour cream and honey is delicious.

Honey and ham has become so traditional that the homemaker rarely bakes a ham without adding the glamorous honey touch. A candied ham sounds just as good as it is.

And how does **honey go with fresh fruits?** Splendid! In fact they are close companions. Pears can be baked in honey; so can bananas. Any fresh fruit salad needs only a simple honey dressing to be spruced up for the table. And the fresh fruit drinks so popular in summer are picked up flavor-wise with a bit of honey.

But you know all this, you honey merchants. You have lived with honey most of your lives and know its many uses better than anyone. You certainly don't need to be told.

Why then, this sudden emphasis on honey's ability to combine with other foods? Simply this:

Let's not be afraid of our competition this summer as we market honey. Let's join it!

Honey need take a back seat to **no marketed foodstuff.** There is no reason honey should be outsold. As we promote our honey we must paint honey as a joiner, a good companion food for all other foods. We want to plant this idea in the homemaker's mind, so that as she buys a quart of milk she will also buy a jar of honey, as she buys a box of cereal, she will also buy a jar of honey, as she buys a half dozen grapefruit she will also buy a jar of honey, as she buys a ham she will also buy a jar of honey, and so on.

We do not need to fear the competition of other foods when we are marketing a food that should be used in combination with other foods. Let's push this idea this summer as we sell honey. The above list of honey's close friends will serve as a guide to you honey salesmen as you promote honey through your own local advertising and point-of-sale displays.

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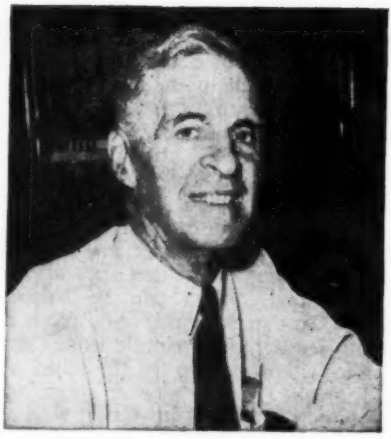
A Talk to Beekeepers

by M. J. Deyell



Shotgun versus Rifle

SOME YEARS AGO, while attending a beekeepers' meeting in western Ohio, I appeared on the program and in my preliminary remarks, said that I would use the shotgun method for putting across what I wanted to say. A few years later I made another talk in the same town and a fellow who had heard me on the previous occasion said, "Jack, did you bring your shotgun today?"

Most men know the difference between a shotgun and a rifle but for the benefit of some women readers, I should explain that a rifle shoots a single bullet or piece of lead while a shotgun charge contains many small pellets of lead. It is easier to hit the mark with a shotgun than with a rifle. If I should talk about one thing, for example, queen rearing, some readers might not be interested. If I talk about a number of things related to beekeeping at least some "pellets" of my talk might hit the mark.

At this point, even though what I am about to relate may seem irrelevant, I cannot refrain from telling a true duck-shooting story which has to do with a shotgun: Some years ago, when I was a young man working for a wheat farmer in Saskatchewan, Canada, a flock of wild ducks, large mallards, lighted on a pond between the house and the barn, where the farmer's wife had some tame ducks. The farmer and I ran for our shotguns and managed to get one duck each. Five of the wild ducks flew a short distance to a small pond beyond the rise of a knoll. I crept along on my hands and knees until I could see the ducks quite close together in the middle of the pond, then let them have it. I got four with one shot. Can any of you duck hunters top that?

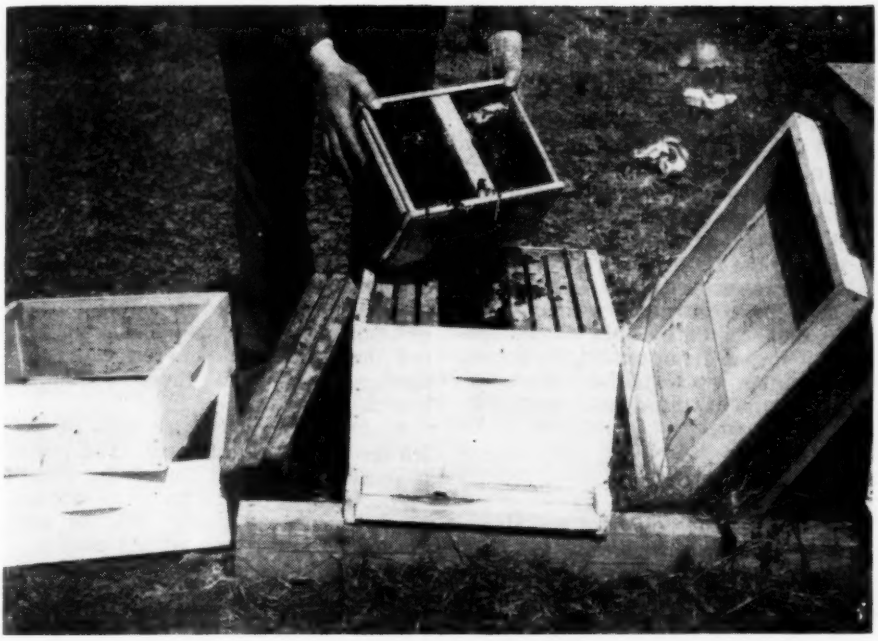
Locating Out-apiary Sites

At this season of the year some beekeepers who wish to increase the number of their colonies may be looking for suitable locations for new apiaries. In this connection I am reminded of something that happened in Ohio a few years ago. Two beekeepers in eastern Ohio went to the western part of the state to find some suitable locations for their bees. One located an apiary at the side of a woods. Near the close of the season he decided to take a walk to the other side of the woods, and to his amazement, found a fairly good-sized apiary. Later on he discovered that the bees belonged to a neighbor of his. Neither beekeeper knew the other had bees in that locality.

Choosing an apiary site is not as simple as it may seem. The apiary should be a reasonable distance from a highway; should have protection from the prevailing winter winds; water near by for the bees; should be easily accessible for a truck; and last but not least, there should be nectar and pollen plants in abundance. I can recall looking all one day for a suitable apiary site and not finding one. That was when we had commercial honey producing apiaries in western Ohio.

Handling Bees Late in the Evening

You readers may recall that during July, 1953, I made a trip in a station wagon through Alberta and British Columbia visiting beekeepers. One afternoon I met with a small group of beekeepers out from Calgary. One beekeeper wanted me to look at his bees. He had put off opening the hives until



This shows one method of putting a package of bees into a hive. The bees should be fed sugar syrup before being emptied out of the cage, so they won't fly around so much.—Pa. State Univ. Photo.

after nine o'clock in the evening. In that country there is a long twilight—it doesn't get dark until around 10 or 11 at night. However, it was still twilight when we opened up the hives and I supposed that we would be badly stung. The hives were boiling over with bees in hives three and four stories high. None of us received any stings. The reason was that the bees had been working well that day and were so full of nectar that they were not inclined to sting.

Generally speaking, it is inadvisable to manipulate hives early or late in the day unless there's a good honey flow on.

Scraping Off Stings

The inexperienced beekeeper may not know just what to do when a bee stings him. The stinger, as soon as it enters the flesh, should be scraped off with the fingernail, or a hive tool, before the poison sac is emptied. Experienced beekeepers are accustomed to scraping off stings. Some use bee gloves which protect the hands from stings and propolis. It is well to wear a good tight bee veil to avoid being stung around the face. Some wear white bee suits which are protection against stings, and they are cooler than dark clothing.

If, however, hives are manipulated during the middle of the day when the bees are working well and if a smoker is used properly, there should be little danger of being stung.

Manipulating Hives Properly

Before opening a hive, a smoker should be lighted and well started so it will not go out. There are different kinds of smoker fuel. We use burlap sacks rolled and cut into lengths which will fit the barrel of the smoker. It is well to light a piece of paper and drop it into the bottom of the smoker, then lower the piece of burlap so that it comes in contact with the burning paper, all the while pumping the smoker gently.

If a cotton veil is used, the smoker should be lighted before putting the veil on. Flames may come in contact with the veil and burn it.

A few puffs of smoke should be

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blown into the entrance of the hive to subdue the guards. Never stand in front of the hive to interfere with the flight of the bees. If the hive has an outer and inner cover, remove the outer one and insert the hive tool under one corner of the inner cover. Blow a few puffs of smoke through the small opening, then wait a few seconds until the bees are driven down. After the cover is off, put a few puffs of smoke over the tops of the frames until the bees are driven down between the combs. Do not give them too much smoke. This causes them to run over the combs and makes it very difficult to find the queen. With a little practice and experience one can learn just how much smoke to use.

How to Remove Combs

Stand at one side of the hive. Shove the hive tool down between the end bars of the nearest outside frame and the wall of the hive and pry the combs over to the opposite side. Then separate the nearest frame from the adjacent frame and carefully lift out the comb. Never make any quick moves. Handle combs slowly and carefully. After the first comb is removed and examined, it should be stood on end at the front corner of the hive in a position that will not obstruct the entrance of the hive. The reason for this is that if the queen should be on this comb that is lifted out and should crawl off the frame onto the grass near the entrance, as she will do at times, she can more easily enter the hive. If this comb that is lifted out of the hive temporarily is placed at the back corner of the hive and the queen should be on the comb and leave it, she might get lost in the grass and never get back into the hive.

After the first comb is removed and stood at the side of the entrance, the next comb should be removed and examined, then placed back into the hive against the nearest side. The remaining combs should be removed and examined then placed back in the hive after examination in like manner. Before putting the first comb removed back into the hive, the combs should all be pushed over to the farther side to make room for the comb that is to be put back. It is well to push all of these combs over at one time with a hive tool, in order to save time and avoid killing bees.

What You Are Likely to See

A normal colony during April in this latitude should have at least three pounds of bees covering five or six combs. The colony should have from three to six combs of brood during the middle of April. These combs should contain brood in all stages, some cells of pollen and some honey. The honey is usually located in the upper portion of each comb. The beginner can soon tell the difference between cells containing honey and those containing brood.

One will frequently see balls of pollen on the legs of the bees. The pollen is packed into the cells of the combs to be used as larval food, as needed. Freshly gathered nectar will be seen glistening in the cells of the combs.

It should be said that in manipulating double story brood chamber colonies in this latitude the queen will usually be found laying in the upper chamber. As soon as she has filled six to eight frames with brood in the upper chamber, she will then go down into the lower chamber.

In parts of the South it may be necessary to put on supers during this month to provide comb space for incoming nectar and for brood rearing. Giving supers before they are badly needed helps to prevent swarming.

Don't Skimp on Syrup for Packages

A number of articles have already appeared on installing and handling packages of bees. It is safe to say that the majority of beekeepers do not give their package bees enough to eat. The amount of syrup necessary for packages depends on the nature of the season and the amount of nectar bees are gathering from natural sources. If there is a dearth of nectar after the packages are installed, it is advisable to continue feeding sugar syrup to provide ample food for the bees and to encourage brood rearing.

Some make sugar syrup of equal parts sugar and water. We use two parts of granulated sugar and one part of water.

hy Don't Beekeepers Get ore Surplus Honey?

A few reasons will be enumerated:

1. **The lack of adequate stores** prior the beginning of the main flow is e most common cause for failure to t surplus honey. Bees must have a ntinuous amount of food from early ring until the major honey flow starts. colonies are boiling over with bees, they should be at the beginning of e flow, such colonies will store the ximum crop, if available.

2. **Poor queens.** When checking over lonies in the spring, if a poor queen found, she should be replaced with young, vigorous, laying queen. A or queen may be detected by exam- ing the work she is doing. If her ood is scattered and the patches are all, and if the queen is small and iny in appearance and walks slowly er the combs, in a faltering manner, e should surely be replaced. As a rule, eens are quite easily introduced dur- a honey flow. During a dearth of ctar it is difficult to introduce queens ccessfully.

3. **Poor combs.** The brood chamber each hive should consist of combs de up of worker cells and not drone ls. Combs with large patches of drone ls should be removed from the brood amber and replaced with good combs frames with full sheets of wired ndation. These combs with patches drone comb taken from the brood amber may be used in supers for the oduction of extracted honey. It is ll, however, to place queen excluders der the supers or the queens may ve the brood chambers and go up in- the supers containing the drone cells d lay unfertile eggs in these drone ls. When queen excluders are used, e knows the queens are down in the ood chamber where they should be, tead of up in the supers.

4. **Failure to put on supers in time.** ny tons of honey are lost each sea- because of the failure of beekeepers supply supers when they are needed. me will put off adding supers until e honey flow has started. By rights, pers should be put on a little in ad- nce of the time they are actually ded. We refer to supers containing wn combs. It is unwise to put supers with full sheets of foundation on hives too early, before the honey flow is on. Sometimes bees will chew holes in the full sheets of foundation if there is a dearth of nectar. And so, if you do all the things mentioned and it is a good season for honey, you are bound to get a crop.

More about What Happens to Old Queens

This question came up in talks recently. We have had different opinions from various beekeepers over the country. Here comes Mr. H. O. Williams, of Arkansas City, Kansas, who says that he was sitting in front of one of his hives and he watched a clipped queen that was quite old, being crowded out on the landing board of the hive. Two worker bees, one on each side of her, held the old queen while a young queen came out of the hive and stung the old queen. The young one then went back into the hive and the two worker bees dropped the old queen on the ground in front of the hive. Possibly some of you readers have seen something similar to this. I never have. I do think if more of us would take time to do some observing, perhaps we would learn more about bee behavior.

Years ago when most beekeepers produced section comb honey, they lived with their bees and could tell you the peculiarities each colony and queen had. Now days, most of us take very little time to observe bee behavior.

During the comb honey era, from 1876 to 1906, when it was necessary for beekeepers to be with their bees constantly during the swarming season, bee journals were filled with observations and experiences of beekeepers. Our industry is the richer for information on bee behavior gained during that era.

Our Cover Photo

This excellent close-up picture of a honeybee on a dandelion blossom was taken by Ben M. Knutson, Alamosa, Colorado.

XUM

Just News

The **Eastern Missouri Beekeepers' Association** will meet on April 2 in Clayton Court House, Clayton, Missouri. Swarm control will be discussed and refreshments will be served. Come one, come all.—Arrena S. Gerlach, Sec'y.-Treas.

The **Southeastern Minnesota Beekeepers' Association** will hold its spring meeting in Zumbrota, Minn., in the Community Room of the REA Office, located on North Main Street. This will be an evening meeting and will start at 7 P.M. sharp on April 12. The President of the State organization, Mr. Glen McCoy has promised to speak to us at this meeting and Robert Banker, Secretary of the American Beekeeping Federation will also be with us with an interesting topic. Hiram Hanson, our newly elected president promises a very instructive meeting with many prominent authorities on beekeeping to aid us with our problems. All beekeepers are urged to attend.—F. Q. (Quint) Bunch, Sec.

The **Westchester County Beekeepers' Association** will hold its "Annual Fellowship Dinner" on Sunday, April 28, at the Coronet Tea Room, 16 Lockwood Ave., New Rochelle, N. Y., at 2:30 P.M. sharp. After dinner, we will retire across the street to the Odd Fellows' Hall to have a short business meeting. At this time "Bee Problems" will be discussed on swarm controlling and toxic sprays. An invitation is extended to all beekeepers and their families.—Mrs. Alfred Roth, Pub.

The **Worcester County Beekeepers' Association** will meet at the Worcester Natural History Museum, 21 Cedar St., Worcester, Mass., April 20. A pot-luck supper will be served at 6:30 P.M. The speaker of the evening will be Mr. Wallace Parker, Secretary of Massachusetts Federation of Beekeepers who will show slides on beekeeping and install a package of bees in the club hive in the lecture hall.—Peter S. Stapor, Publicity.

The .**Norfolk County Beekeepers' Association** will hold its next meeting at the Norfolk County Agricultural School, Walpole, Mass., on April 1, at 8 P.M. At this meeting a package of bees will be installed in the club hive. Yes, and April Fool's Day too! As usual delicious refreshments will be served.—Edith L. Colpitts, Cor. Sec.

The **Rio Grande Val'ey Beekeepers' Association** held an all-day meeting on Feb. 21, 1957. The following officers were elected for the coming season: O. V. Brown, San Benito, Pres.; Dewey Beals, Harlingen, Vice Pres.; George P. Wene, Weslaco, Sec.-Treas. Pollinization of cantaloupes was the most interesting topic discussed. Beekeepers felt that five dollars should be a minimum charge for each hive placed in a melon field. Most beekeepers felt that pollinization was not a profitable deal here in the Lower Rio Grande Valley of Texas.—George P. Wene, Sec.-Treas.

The officers of the **New Hampshire Beekeepers' Association** for 1957 are: Dr. Herman N. Sander, President; Assel B. Moshier, Vice-president; and Walter J. Berry of Chester, Sec.-Treas.

The annual meeting of the **American Beekeepers' Federation Auxiliary** met in the Red Velvet Room in the Lafayette Hotel January 31, 1957 for a 10:30 Brunch. 120 women were present from 23 states, Washington, D. C., and Canada.

The meeting was opened with a prayer given by Mrs. Ivy Stone of Pasadena, Calif. Mrs. Ethel Krebs, Fair Oaks, Calif., the first president gave the welcome. The response was given by Mrs. Louise Schaefer, Osseo, Wis., immediate past President.

The President, Mrs. Lola Lyle, Sheldon, Iowa conducted the business meeting. Mrs. Harriett Grace brought greetings from the directors and staff of the American Honey Institute and talked on the role of the housewife and the use of honey in the home.

Past Presidents, other officers and charter members who were present were recognized. Greetings were read from those who could not attend. Honored guests were state honey queens Miss Carol Jawort of Wisconsin and Miss Laurine Schmits of Nebraska.

Many door prizes were drawn during the meeting.

California, as hosts to the convention, provided as entertainment a Coffee Klatch for all Monday evening, a tea for the ladies' on Tuesday afternoon and an all-day tour to Knotts' Berry Farm and Disneyland. Transportation and admission was paid by California Honey Packers and Dealers. California went all out to entertain the ladies and we deeply appreciate all that was done for us.

The following officers were reelected: Mrs. Lola Lyle, Sheldon, Iowa, President; Mrs. Thelma Littlefield, Pasadena, California, Vice President; Mrs. Helen Partello, Boone, Iowa, Sec'y.-Treas. — Helen S. Partello, Sec., Am. Beekeepers' Fed. Auxiliary.

The **Midwestern Beekeepers' Association** will meet Sunday, April 14th, at 2:30 P.M., at the I.O.O.F. hall, 812 Westport Road, Kansas City, Mo. Topics to be discussed are, "Installing Packages", "Queen Introduction" and "Pollination". Also a film, "The Rival World" will be shown. Everyone welcome. Refreshments will be served by the Ladies' Auxiliary.—J. F. Maher, Sec.

The **Pennsylvania Short Course** in beekeeping will be held August 12 to 16. This early announcement is for those who must set their vacation dates early. More details in May Gleanings. —Edwin J. Anderson.

On March 11, 1957, the **Essex County Beekeepers' Society, Inc.,** one of the oldest organizations in the nation with continual operation since its founding in 1921, elected the 1957 officers to its executive staff. Parker Joralemon (upper Montclair) President; Louis M. Panagini (Nutley) Vice-president and program chairman, and Charles Mairer (Bloomfield) as Secretary-Treasurer.

Professor Robert Filmer, prominent Rutgers University bee specialist, was the guest speaker of the evening. Mr. Francis Gravely, manager of the N. Y. A. I. Root Company office assisted in the popular question and answer period.

A most interesting film, "Bees for Hire" was shown (a 30-minute sound-color film excellently produced).

At our next meeting, J. C. Mattheni-us, N. J. State Bee Inspector will be our guest speaker. His topic will be, "Why Have a Bee Inspector?" Mr. Paul L. Holcombe, retired N. J. State Bee Inspector and very prominent apiarist in the East will be our May 13, guest speaker. "Seasonal Management" will be the topic in addition to a film, "Bees and Honey", a 16 mm sound and color 30 minute affair.—L. M. P.

Big Job Ahead. Our Ohio State Beekeepers' Association will be host for the coming National Convention of the American Beekeepers' Federation, Inc., being held in the Neil House, Columbus, Ohio, this coming January 27 to February 1, 1958. (Taken from Ohio Beekeepers' Association news letter for February, 1957.)

The **Worcester County Beekeepers' Association** will meet at the Worcester Natural History Museum 21 Cedar St., Worcester, Mass., April 20. A pot luck supper will be served at 6:30 P.M. The speaker of the evening will be Mr. Wallace Parker, Sec., Massachusetts Federation of Beekeepers who will show slides on beekeeping and install a package of bees in the club hive in the lecture hall.—Peter S. Stapor, Publicity.

The **Middlesex County Beekeepers' Association (Mass.)** will hold its final indoor meeting of the spring season on Saturday, April 27, at 6:30 P.M. Prior to the pot-luck supper, members will install a package of bees in a new hive. This hive will be moved during the spring and summer months to each outdoor meeting so that the members will have an opportunity to inspect the hive and watch its progress. At the March meeting of the Association the film "Modern Bee Breeding" was shown to the members.—L. C. Proctor, Sec.

More Honey Seen in Future Baking. Cakes with honey, as well as honey cakes, are in store for the American housewife. Research at Kansas State College, Manhattan, Kansas, shows that more and more honey will find its way into baked goods in the future.

Researchers, working with 15 different types of honey, have found that:

Substituting honey for all or part of the sugar in some baked goods adds to

(Continued on page 248)

Asked & Answered

Feeding Dry Sugar

Q. I have been reading about feeding sugar dry to bees. How is this done?

A. Dry sugar can be fed in place of syrup, thus avoiding all robbing by placing a few handfuls of granulated sugar on a paper plate or even on top of the inner cover to the ordinary hive. The strip of wood that covers the bee escape hole, of course, should be removed. It can be used very safely any time when they can go to the field, gather water and make their own syrup.

Comparison of Food Value

Q. What is the food value of honey compared with that of beef or eggs, or some of the other staple foods?

A. In comparing the food value of honey with beef and eggs it is important to remember that beef and eggs contain a high percentage of protein, which can be utilized in the body in repairing worn-out tissues, while honey does not contain protein but is an energy-producing food. Honey should therefore be classed with the fuel foods which supply the body with energy and not among those whose function it is to build and repair the body—that is the "tissue-formers" as they are sometimes called. The energy value of honey is about 1485 calories per pound. The energy value for eggs is about 635 calories per pound, and that of beef ranges from 545 calories per pound up to about 1100 calories per pound, according to the cut.

Bees for Cucumber Pollination

Q. How important are honeybees for pollinating cucumbers, especially under glass?

A. The cucumber plant produces incomplete flowers, namely pistillate and staminate, all on the same plant. Pollination must be accomplished through flower-visiting insects or by hand pollination by means of a camel hair brush. The latter method is not practical because of the labor expense.

Some years ago we conducted tests under green house conditions with package bees vs. established colonies and found the established colonies were superior to package bees although package bees can do a good job for a short period.

If cucumbers are grown under glass during the year when outside blooming plants are available the bees desert the cucumbers for the more attractive flowers. Therefore, it is advisable even though a high mortality of bees occurs within the greenhouse, to confine the bees within the greenhouse.

When colonies are used for greenhouse cucumber pollination about two and one-half to three weeks is about as long as they will furnish dependable pollination because of the rapid mortality of bees. This period of pollination service can be extended by stimulating brood rearing and thus help the maintainance of the bee population, pollen supplement or substitute, and in some cases feeding sirup is very helpful.

The pollination of cucumbers grown under field conditions is quite a different problem than when they are grown under glass. Usually one strong colony per acre will provide blossom coverage to insure big yields. However, evaluation must always be made as to acreage of other blooming plants and the attractiveness of their bloom for honeybees. Under extreme conditions even two colonies per acre may be necessary to furnish adequate pollination.—Winstan E. Dunham, Assoc. Prof. of Entomology, Ohio State University, Columbus, Ohio.

Granulation of Winter Stores

Q. I expect to winter most of my colonies in two-story hives with the upper story full or partly full of honey. Will the honey in the upper story granulate if left on all winter, or will there be sufficient heat to keep it from granulating?

A. This will depend upon the character of the honey to a large extent. The honey stored in some localities is more inclined to granulate than in others, but in the eastern states there is, as a rule, not much trouble from the granulation of winter stores.

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 18c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month, preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

IOWA honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

CLOVER extracted honey in sixties, Abram Brubaker, Rt. 2, Lancaster, Pa.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED—All grades of extracted honey. Send sample and price. Deer Creek Honey Farms, London, Ohio.

CASH FOR BEESWAX. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

WANTED—White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

BEST CASH DEAL for your honey (any grade) and beeswax. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

HONEY WANTED, all grades in 60's. Mail samples, advise quantity, best price. M. R. Cary Corp., 219 Washington Square, Syracuse 8, New York.

BEESWAX WANTED—Highest prices paid in cash or trade for bee supplies. The A. I. Root Company, Medina, Ohio; Council Bluffs, Iowa; San Antonio, Texas.

WRITE FOR Shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. Walter T. Kelley Co., Clarkson, Kentucky.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity, HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, California.

WANTED: Light amber clover and fall flowers honey, no buckwheat. Also white clover. Send sample and lowest price. Cloverdale Honey Co., Fredonia, N. Y.

WANTED—Honey in sixty-pound cans, also beeswax, any quantity. L. E. Allen, Tipton, Mich.

CASH for Amber and Buckwheat Honey. Best cash price for wax. Hubbard, Onsted, Michigan.

WANTED—Buckwheat and light amber honey. Eastern Food Products, 421 Bedford Ave., Brooklyn, N. Y.

WANTED — Extracted honey, all grades, all amounts. We pay cash. Send sample and price wanted. The Honeymoon Products Co., Box 85, River Rouge, Mich.

WAX WORKERS renders and buys beeswax, manufactures plain and WAVYWIRED foundation. Prices and shipping tags on request. WAX WORKERS, Ithaca, N. Y.

WANTED, chunk comb and extracted honey. Mail sample and price. Stoller Honey Farms, Latty, Ohio.

FOR SALE

WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Michigan.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

FOR SALE—New heart cypress 10-frame bottom boards. KD, 10 or more, $1.00 each; 50 or more, 90 cents each; 100 or more 85 cents each. One nailed up sample postpaid, $1.25. Fred L. Poole, Elizabethtown, Rt. 2, Box 67, No. Car.

FOR SALE—Used equipment. Certificate furnished. Best offer. Kerney, 1015 S. Lafayette, Royal Oak, Mich.

QUEENBEE PAINTING OUTFITS, $1.50 postpaid. Southwick Apiaries, Waban, Mass.

SUPERS, COVERS, BOTTOMS: Good grade wood. Supers, $1.00; covers and bottoms, (4 cleat), $ .75. Write for other information. Arthur Johanson, 11360 Redwood Highway, Healdsburg, California.

FOR SALE—50 8-frame hive bodies, 50 supers, 25 bottom boards, with lids, inner covers, and some queen excluders, priced very reasonable. Harold Danniel, Griggsville, Ill.

FOR SALE—My equipment for 25 colonies of bees. Henry Stuit, Hospers, Iowa.

BEEKEEPERS—do your work the easy way. Save labor—increase profits by using Kruse Superlifter. Write for illustrated circular giving price. Kruse Superlifter, Pipestone, Minnesota—or—Luck, Wis.

FOR SALE—New and used 10-frame bodies, bottoms and covers. 100 new bodies with frames of plain foundation. 100 pounds of Hubbard foundation, 69 pounds Root shallow. VERY LOW PRICES. RAY WILCOX, ODESSA, N. Y.

FOR SALE—Largest pollination service in New Jersey. Includes bees, equipment, customers, and truck. Fisher Pollination Service, Century Lane, Plainfield, N. J.

XUM

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

QUALITY BRED ITALIAN QUEENS

March ..... $1.25 each
April through May .. 1.00 each
Package bees available this season.
3-lb. pkg. w/q .....$5.00 f.o.b.
2-lb. pkg. w/q ..... 4.00 f.o.b.
Our breeder queens selected from our Michigan Apiaries for hardiness and honey gatherng.
Walter D. Leverette Apiaries
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Booking orders now. Over 30 years a shipper. Send for Free Circulars.
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BUILD your own FACTORY TYPE HIVES and SUPERS with SAMSON CORNER JOINTS. Only a bench saw and hand tools required. Our low cost Copyrighted BLUE PRINTS and INSTRUCTIONS cover everything and can save you many dollars. Write for information.
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Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

FOR SALE—Established pollination service. Factory made equipment. Yard locations, truck and customers included.—Clifford Witt, Mt. Holly Rd., Burlington, N. J.

FOR SALE—203 hives, two-story, 36 one-story, and full dep h supers, 70 or more pound section supers ready to go on. A 50-frame extractor and other equipment. Will unpack 15th April. Price, $2700. Ray Wilson, Waverly, N. Y.

FOR SALE—300 Standard 10-frame full-depth supers with combs. No disease. Lysle Smithers, Heuvelton, N. Y.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for a certificate of inspection as a matter of precaution.

CARNIOLAN and CAUCASIAN Bees for 1957. Booking queens. Each, $1.00; 2-pound bees with queen, $4.00; 3-pound bees with queen, $5.00. Lewis & Tillery Bee Co., Rt. 3, Box 251, Greenville, Alabama.

FRAMES of brood and bees, queenless, package bees in your packages. Will buy or sell bee outfits. Walker Apiaries, Pharr, Texas.

PACKAGE BEES—Take a vacation on your express money. Come for your bees. Be our guest while here. 2200 hives to shake. Booking orders now. MILLER BROS., SAFFORD, ALA., U.S.A.

QUEENS, 95 cents, bees 70 cents up depending on shipping dates. Will supply new cages or fill your cages. A. V. Dowling, Valdosta, Georgia.

CAUCASIANS—Very hardy, good working, gentle bees. "Hastings" breeder queens used. Young laying queens, $1.25 each. Ready about April 10. Fred Brock, McDonald, Tenn.

THE NORMA ROY APIARY—3 pounds bees, with queen, $3.75. 4 pounds, with queen, $4.50. Queenless package, deduct 75 cents. Live delivery and health certificate. Norma E. Roy & Son, Hessmer, Louisiana

THREE-BAND ITALIANS and Carniolan bees and queens. 3-lb. with queen, $4.75. 5-lb., $6.75. Extra queens $1.20 per. Luther Pickett, Efland, North Carolina.

Dark Italian Queens, 600-pound strain, bred for production, $1.00. With 2 pounds of bees, $3.20; with 3 pounds of bees, $4.00. Henry Loehr, Caldwell, Texas.

CARNIOLAN and CAUCASIAN QUEENS, $1.00 each. I have the late Albert G. Hann strain of bees. Build up fast, make lots of white comb honey. Gentlest of all bees. I have increased my equipment to supply the demand. Roy Waddell, Rt. 3, Woodruff, South Carolina.

SELL ALL OR PART, 550 colonies of bees with extracting supers. Locations available. BALDRIDGE BROS. 196 Genesee Street, Geneva, N. Y.

BECAUSE OF THE DEATH of Ray V. Potter, his entire lot of bees with equipment, 30-frame extractor, honey pump, supers, etc., also my 166 colonies of bees he was running on shares, or 279 colonies in all, are for sale. Bees in good condition, some two and three story. For price and particulars, contact Ray W. Potter, M.R. 1, Perrysburg, Ohio.—Chas. B. Hatton, Jefferson, R. 1, Ohio.

FOR SALE—Full extracting outfit, eight stands of bees, 45 empty Buckeye hives. Write for particulars. Alfred Briggs, New Sharon, Iowa.

FOR SALE OR LEASE—20 strong colonies in one and one-half story 10-frame hives. Stephen Nash, 606 Grove St., De Kalb, Ill.

23 colonies, supers, extracting equipment. Charles L. Thompson, Falmouth, Ky. R.R. 3.

SEEDS

HONEY PLANTS—Ask for catalog. One packet seed each 6 unusual honey plants, $1.00; Pellett Clover root divisions, 25, $2.00, 100, $5.00; postpaid. Pellett Gardens, Atlantic, Iowa.

HELP WANTED

WANTED: Helper or experienced beeman for package and queen season. Give experience, age, size and wages expected in first letter. Howard Weaver, Navasota, Texas.

WANTED—Experienced or inexperienced bee man. Seasonal or year around. Stewart Apiaries, Trenton, Texas.

WANTED—Apiary and packing plant help. Experience desirable but not essential. Five-day work week. Write for details. Schultz Honey Farms, Ripon, Wisconsin.

POSITION WANTED

EXPERIENCED beekeeper wants to work with commercial beekeeper, queenbreeder, or bee supply company. Box 264, Gleanings, Medina, Ohio.

MISCELLANEOUS

FOR SALE—Royal Jelly and The Little Queen Royal Jelly Extractor. Royal Jelly Enterprises, 1017 Los Carneros Avenue, Napa, California.

FRESH ROYAL JELLY, $20.00 per ounce. Prices quoted to Doctors and Hospitals, on request. O. K. Anderson & Son, P. O. Box 193, Phone 466 R5, Coffee Springs, Ala.

COMB HONEY PRODUCTION, with new ideas, plenty comb honey every year, all frames sections finished, no swarming, regular equipment, surprising results. Instructions, $1.00. Diemer Bee Co., Rt. 2, Box 7, Liberty, Mo.

WANT TO BUY 300 to 500 colonies of bees. With equipment to run. On honey bases. A. Jurgensen, Holstein, Iowa.

WANTED—Books by Dr. C. C. Miller. State title, edition and price. R. H. Gardner, McDonaugh, Ga.

ROYAL JELLY in capsules; box of 30 capsules with 10 milligrams, royal jelly, each $1.50 to beekeepers, retails for $3.00. Box of 30 capsules with 25 milligrams each, $2.50 to beekeepers, retails for $5.00. Prairie View Honey Co., 12303 12th St., Detroit 6, Mich.

ROYAL JELLY BEAUTY CREAM: 1 oz. royal jelly face cream, $3.00; in lots of 12, $20.00. 1 oz. Deluxe package royal jelly face cream, $5.00, 12 boxes, $38.00. Prepaid in the U. S. Prairie View Honey Co., Detroit 6, Michigan.

MAGAZINES

Archiv fur Bienkunde. International journal for Bee Culture and beekeeping economics. Founded in the fall of 1918. Oldest economic bee journal in the world. Praised again and again for its decades of independent leadership through many endorsements and advice as a valuable source also for the practice. Classic. Yearly DM 5.50. Any aspiring beekeeping friend will receive a sample copy. Biene-Verglag, Gielbach, Lindau, Germany.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3106, Cape Town, South Africa.

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh Dist. Naini Tal, U. P. India or available through them. Subs. Rs9/ or 15 shillings or $2.25

Better-Bred Queens

Three-Banded Italians

Plenty early April bees. Open dates, April 1st to 12th. Order direct from this ad. Our "Better Bred Stock" will please you.

	Queens	2-lb. w/q	3-lb. w/q
1-24	$1.40	$4.25	$5.35
25-100	1.15	3.75	4.75

Calvert Apiaries

Calvert, Alabama

CARNIOLAN and CAUCASIAN QUEENS

Only source of original strain of imported queens by the late Albert G. Hann.

Queens, $1.35 each, air mail, discount on quantity. Queens to foreign countries, $2.00 each. Safe arrival in continental U. S. only. Ready March 1.

No package bees this season.

W. D. REAMS

Box 87 LaBelle, Fla.

LITTLE'S ITALIAN QUEENS

ROYAL JELLY

Booking orders for 1957 season.

1 to 24, $1.40; 25 to 99, $1.30; 99, up $1.20

Write for jelly prices.

LITTLE'S APIARIES

P.O. Box 122 Shelbyville, Tennessee

CAUCASIAN QUEENS for JUNE

Prices on request.

Booked up on Package Orders.

THANKS.

HOWARD WEAVER

Navasota, Texas

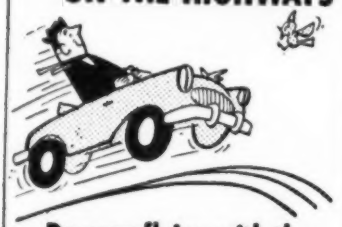
XUM

HOLLOPETER'S Italian Queens
June 1st - Dec. 1st, $1.00 Each
WHITE PINE BEE FARM
Box 810 Rockton, Pa.

1957
3-Banded Italian Queen Bees
1-24 ..... $1.25 each
25 or more ..... 1.10 each
Queens ready about April 1
GEO. W. MOORE
SHASTA Shasta, County CALIF.

SELECT ITALIAN QUEENS
$1.00 each
As nature's pattern — we never give a nurse colony more than 20 cells at any one time, which results in better queens.
O. K. Anderson & Son
P.O. Box 193 — Phone 466 R5
Coffee Springs, Ala.

J. E. WING & SONS
43 Years Continuous Service
Italian Package Bees
and Queens
Our Specialty
Knights Landing, Calif.

DON'T "FLY" ON THE HIGHWAYS

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AIR NATIONAL GUARD

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YOU'LL LIKE GOAT MILK! Profit and health with dairy goats. Sample monthly magazine and information FREE. Dairy Goat Journal, Dept. T., Columbia, Mo.

BEE WORLD, the international journal of the Bee Research Association published monthly, contains the latest research reports on bees and beekeeping. With Apicultural Abstracts it costs $5.50 per annum, or $6.00 including membership of the Bee Research Association. Apicultural Abstracts only $4.50 per annum from the Hon. Subscription Secretary, Bee Research Association, 10 Barnett Wood Lane; ASHTEAD, Surrey, England.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription $3.00. Box 189, San Angelo, Texas.

QUEENS

Italians With queens	1-24	25-99	100 up
3-lb. pkg.	$5.00	$4.90	$4.85
2-lb. pkg.	4.00	3.95	3.90
Nice large queens	1.15	1.10	1.00

Caucasians

We have enlarged our queen yard to fill the great demand for our queens. Send us your order of 1 or 1000.
MITCHELL'S APIARIES
Bunkie, La.

ITALIANS
QUEENS **BEES**
Quality and service guaranteed to please.
Booking is heavy, please order early.

	1-24	25-99	100-up
2-lb. pkg. w/q	$4.25	$4.00	$3.75
3-lb. pkg. w/q	5.25	5.00	4.75
Queens	1.40	1.30	1.20

For larger packages, add $1.00 per lb.
Sunrise Apiaries
Petal, Mississippi

PROTECT YOUR FUTURE. BUY YOUR SAVINGS BONDS NOW.

CAUCASIAN or ITALIAN
Package Bees and Queens for 1957

Gentle bees, less swarming, good producers, health certificate and live arrival guaranteed are just a few things you get when your requirements are sent to me. No extra charges on orders booked in advance.

	1-25	25-50	50-100
2-lb. pkg. w/q	$3.70	$3.45	$3.20
3-lb. pkg. w/q	4.60	4.30	4.00
4-lb. pkg. w/q	5.50	5.15	4.80
5-lb. pkg. w/q	6.40	6.00	5.60
Queens	1.20	1.10	1.00

FARRIS HOMAN
SHANNON, MISS.

ITALIAN BEES AND QUEENS

2-lb. pkg. w/q	$3.70
3-lb. pkg. w/q	4.75
4-lb. pkg. w/q	5.50
5-lb. pkg. w/q	6.40
Extra queens,	1.00
Tested queens	1.80

10% books your order, balance 10 days before shipping time.
Health certificate with each shipment.
GASPARD BEE CO. Hessmer, La.

Canada's
National Monthly Magazine
for Beekeepers
Canadian Bee Journal
Streetsville, Ontario, Canada

Here They Go:
by Express
Truck
and
Parcel Post
What?
PACKAGE BEES
with either Island Hybrid or our regular Italian queens.
Most April dates were booked to capacity March 10th. You cannot go wrong in trying for your preferred date. There are always changes being made due to weather and other reasons. May has many good early open dates.
Order now. Check March issue for prices.

Rossman Apiaries
P.O. Box 133, Moultrie, Ga.

Healthy Italian Bees & Queens
Write for 1957 Prices
Georgia Bee & Honey Apiaries
P. O. Box 312 Hortense, Ga.

PACKAGE BEES ITALIAN QUEENS
Good Producers — Gentle
You will like them. Good service.
A. R. BANTA **Los Molinos, Calif.**

A PUFF'S ENOUGH — FOR BUSY BEEKEEPERS!

The Push-Button Bee Smoker

Join the swarms of happy users — thousands of them who save precious time and money with their HIVE-BOMBS. No heat: No sparks: No fire hazard — not from HIVE-BOMBS. You get fingertip convenience when you hold a HIVE-BOMB; no fussing with fuel or matches. And a HIVE-BOMB'S life is amazingly long — the perfect standby tool.

$1.29 plus freight at your dealers or in his catalog.

(R) Stewart Taylor, Camargo, Illinois

JUST NEWS

(Continued from page 241)

their flavor and color.

It is now possible for the first time to use honey alone to sweeten cakes commercially.

Cakes with a high concentration of honey stay moist and fresh-tasting longer than honeyless cakes.

Honey noticeably added to the flavor and color of some cookies, particularly sugar cookies, vanilla wafers, fruit bars and brownies.

Honey substituted for six per cent of the sugar in white breads and 12 per cent of the sugar in dark breads imparted a rich flavor and aroma to both.

The work was done in cooperation with the U. S. Department of Agriculture.—Science News Letter, February 2, 1957.

The officers of the **New Hampshire Beekeepers' Association** for 1957 are: Dr. Herman N. Sander, President; Ansel B. Moshier, Vice-president; and Walter J. Berry of Chester, Secretary-Treasurer.

Rev. Jacob W. Stine of Fairfield, Iowa, passed away Jan. 28. He pioneered the organization of the Iowa Beekeepers' Association and was first Vice President. He was also deputy Bee Inspector for two or three years. He was a charter member of the organization.

Harry J. Philpott, Brooks, Alberta, Canada, passed away December 22 at the age of 68. Mr. Philpott was past-president of the Alberta Beekeepers' Association, also an original director of the Alberta Honey Producers' Cooperative. Besides a host of beekeeping friends he leaves to mourn him, one daughter and two sons.

According to an item appearing in December 1956 issue of **The Australian Bee Journal** bees in that country may be moved at night between the hours of 6:30 P.M. and 7:00 A.M., but not supers or honey.

Cure for Robbing. One treatment which is claimed to cure a severe case of robbing is to remove the lids and mats from every hive in the yard, the theory being that the robbers are called home to defend their property. We suggest that some enterprising beekeeper give it a thorough trial and let us know the result.—From Nov. 1956 New Zealand Beekeeper.

Package

BEES and QUEENS

	1-24	25-99	100-up
Queens	$1.40	$1.30	$1.20
2 lbs. & Q.	4.25	4.00	3.75
3-lbs. & Q.	5.35	5.05	4.75

J. F. McVay

Jackson, Alabama

NOW is the time to

O R D E R

Your HONEY LABELS

Ask for our Label Catalog

THE A. I. ROOT COMPANY

Medina, Ohio

U. S. Savings Bonds come in all sizes . . . . . and grow bigger every year.

SELECT
ITALIAN QUEENS

1-24 . . . . . $1.40 each
25-49 . . . . . 1.20 each
50 & over . . . . 1.10 each

Queens shipped postpaid airmail. Live delivery guaranteed.

JOHN S. SHACKELFORD
Rio Oso, Calif.

TOO LATE TO CLASSIFY

TEN COLONIES food chambers and supers, some honey, $69.00. Earl Henry, Gambier, Ohio.

FOR SALE—20 colonies of bees and equipment for extracted honey. Robert C. Hart, 501 W. Armstrong, Peoria, Ill.

WANTED—100 colonies bees. Late April, May. Fred Russell, Chelmsford, Mass.

TOPS in Package Bees and Queens — 1957
Bees Will Cost More This Season

Get your money's worth in Dadant Starline Hybrids and/or, GARON'S Three-Banded Italians. Can only accept orders for shipment after May 10th.

PRICES to May 15th:

	QUEENS				
	Italians	Starlines	2-lb. w/q	3-lb. w/q	4-lb. w/q
1-24	$1.25	$1.65	$3.95	$4.90	$5.85
25-99	1.20	1.55	3.85	4.80	5.75
100-up	1.15	1.45	3.75	4.70	5.65

DADANT'S STARLINE HYBRIDS Pat. Off. Reg. U. S.

For Packages with Starline Queens, add 25c extra per package

GARON BEE COMPANY **Donaldsonville, La.**

BEES QUEENS

Rearing Italian bees and queens of reliable quality is our only business.
47 Years Experience

	1 to 24	25-99	100-up
2-lb. pkg. with queen	$4.25	$4.00	$3.75
3-lb. pkg. with queen	5.35	5.05	4.75
4-lb. pkg. with queen	6.45	6.10	5.75
5-lb. pkg. with queen	7.55	7.15	6.75
Queens	1.40	1.30	1.20

For queenless packages deduct $1.00 per package. Tested queens $2.50.
All queens postpaid. Packages F.O.B.

W. E. PLANT **Hattiesburg, Miss.**

QUEENS — ITALIANS
1-10, $1.35 10-49, $1.25 50-up, $1.15
PIEDMONT APIARIES W. F. Morris
Rt. 8, Box 182-A Concord, N. C.

SELECTION OF A BREEDING QUEEN

(Continued from page 217)

form in color neither will her daughters be uniform. The color, of itself, does not really matter as regards temper, honey gathering ability, etc. But a variation in color would indicate that other characteristics might vary just as widely between good and bad. So if we are to be reasonably sure that the queen's daughters are going to be uniformly good they must all be the same color, even if not exactly the same color as the mother queen. Their drone father might be from even better stock than the queen mother.

The next steps require time. Not until you can see the breeding queen's daughters, can you know for sure that she will produce uniform queens. When these daughters have been tested as heads of colonies in the field, then, and then only, can you be certain that you have found a breeding queen worthy of the name.

LET'S TALK ABOUT HONEY PLANTS

(Continued from page 228)

state inspector at that time, discussed soybeans for honey production in the American Bee Journal for January, 1952. He described the honey as water white and of good quality. He found that they yielded best on soils in river bottoms that had been given such an abundance of fertilizer the previous season that some was left over.

New York. C. B. Howard, Geneva, reported that bees worked soybeans heavily in some yards, where the beans were grown on light gravelly soils and made some honey, but when grown on clay soils, bees failed to work them.

Mississippi. N. C. Jensen of Macon writes me that soybeans bloom from August to September depending upon when planted and that he obtained honey from them only once (1952). The honey is dark, according to Mr. Jensen. If anyone has any experience with soybean honey, please write me about it.

Virginia. Mr. William J. Haug of Glenallen, recently sent me some seeds which he says were brought from Florida. He adds that they are called White Spanish Needles. "I have collected seed of the regular Spanish Needles along

(Continued on page 253)

XUM

Italian Queens .... "GULF BREEZE" .... Packages

Queens in large numbers are available for divisions and requeening. Only small orders for packages accepted for shipment after April 20th. Some open dates before April 20th.

QUANTITY	QUEENS	2-lb. pkg. w/q	3-lb. pkg. w/q	4-lb. pkg. w/q
1-9	$1.40	$4.35	$5.45	$6.60
10-49	1.30	4.10	5.20	6.30
50-200	1.20	3.85	4.95	6.00

BESSONET BEE COMPANY **Donaldsonville, La.**

PACKAGE BEES **QUEENS**

"ITALIANS"

Wilbanks offers you tested stock proven for honey producing ability and easy handling. Satisfied customers through the years assure you of the greatest value here.

PRICES	1-9	10-49	50 up
2-lb. pkg. with young laying queen	$4.24	$4.00	$3.75
3-lb. pkg. with young laying queen	5.35	5.10	4.85
4-lb. pkg. with young laying queen	6.45	6.10	5.85
Extra Queens	1.40	1.30	1.20

Shipments by Express, Parcel Post, or your Truck

Quality Does Not Cost — It Pays

THE WILBANKS APIARIES **Claxton, Georgia**

THREE BAND and PURE ITALIAN HYBRID

Package Bees and Queens

We ship pure worker bees by mail, express, or truck—with queens introduced or not whichever you like. We guarantee live arrival.

1957 PRICES

Each with a Young Laying Queen

Lots of	2 lbs.	3 lbs.	4 lbs.	5 lbs.
1 to 11, Each	$4.25	$5.35	$6.45	$7.55
12 to 29, Each	4.05	5.10	6.15	7.20
30 or More, Each	3.85	4.85	5.85	6.80

Untested Queens, 1 to 11, $1.40; 12 to 29, $1.30; 30 or more, $1.20.
Tested Queens, $2.00 each.

JACKSON APIARIES **P.O. Box 58** **Funston, Ga.**

All 1956 Orders Filled Without Much Delay

Let Us Fill Your 1957 Orders.

2-lb. packages with queens	$3.00 any number
3-lb. packages with queens	4.00 any number
Untested queens	1.00 any number
Tested queens	1.50 any number
Larger packages, add	1.00 per pound

Delivered prices on request. Above prices are F.O.B. except queens which are delivered by mail. Italians only. Remember our 100% Satisfaction always good. If you need more information, write us please.

MERRILL BEE COMPANY P.O.Box 115, State Line, Miss.

Prepare for the Future . . . .

Buy United States Savings Bonds Regularly!

STOVER'S BEES

ITALIANS or **CAUCASIANS**

We are almost booked solid for April shipments at this time (March 9th) but still have some May dates open. Thanks a lot.

PRICES

Lots of	Queens	2 lb. & Q.	3 lb. & Q.	4 lb. & Q.	5 lb. & Q.
1 - 24	$1.40	$4.25	$5.35	$6.45	$7.55
25 - 99	1.30	4.00	5.05	6.10	7.15
100-499	1.20	3.75	4.75	5.75	6.75

Tested Queens. $2.50 each.

Queens Postpaid — Airmailed and/or Clipped — No Extra Cost.
For Queenless Package, Deduct Price of Queen.
Packages F.O.B. Shipping Points.

THE STOVER APIARIES

Mayhew, Miss.

THREE-BANDED ITALIAN PACKAGE BEES AND QUEENS

Shipped anywhere in United States and Canada

1957 Prices FOB Hampton, S. C.	Queens each	2-lb. & Queen	3-lb. & Queen	4-lb. & Queen	5-lb. & Queen
1-24 pkgs.	$1.30	$4.00	$5.00	$6.00	$7.00
25-99 pkgs.	1.20	3.75	4.75	5.75	6.75
99 up	1.10	3.50	4.50	5.50	6.50

(For queenless packages deduct the price of queen)
Queens clipped and painted if desired. Health certificate with each shipment.
Guaranteed safe arrival. Shipper rated in Dun & Bradstreet
TERMS: One-third with order, balance 15 days before shipment.

H. C. BRUNSON P.O. Box 188 Phones: 2161 & 5303 Hampton, S. C.

JENSEN Says:

DADANT'S STARLINE HYBRIDS

Pat. Off. Reg. U. S.

We're booked through April. If yours was one of the many orders we could not conscientiously accept because of prior bookings and fear of disappointing you at delivery time, we are sorry indeed!

OLD CUSTOMERS: If not yet booked for package bees especially, won't you send us your estimated requirements earliest possible; it will help usto serve you better. Inquiries and orders have been unprecedented this early. QUALITY and SERVICE over the yyears have won us many steadfast friends. We thank you! Our prices remain the same as advertised in the March bee journals.

ABJA

JENSEN'S APIARIES MACON, MISSISSIPPI U. S. A.

XUM

CLOVERLINE HYBRIDS

CROSS BRED **PURE ITALIAN**

DOLLAR FOR DOLLAR YOU GET MORE

1 MORE HONEY. Actual tests under rigid commercial field conditions prove that CLOVERLINES will consistently produce more honey.

2 MODERN BREEDING facilities are used in the carefully controlled CROSS BREEDING of our parent strains of selected Italians.

3 NO BABY MATING BOXES. ALL CLOVERLINE queens are mated only in special equipment emphasizing the use of standard size brood combs. This allows thorough appraisal and inspection of every queen under NORMAL egg laying conditions before acceptance for package shipment. This careful checking out procedure results in less supersedure in newly installed package colonies.

4 HIGHLY TRAINED full time bee men are your guarantee of properly controlled cross breeding, proper caging and handling, and proper shipment. We employ no seasonal or temporary labor.

5 NO DRONES, and overweight of young bees are the rule for every package. This insures full weight on arrival at destination.

6 GUARANTEED live delivery and certificate of inspection with every shipment.

7 QUICKER DELIVERY and LOWER SHIPPING COSTS are often realized as we are located farther North than most shippers. Three mainline railroads give fast night and day service to all points.

Prices with CLOVERLINE HYBRID Queens

	1-24	25-99	100 up
2-lb. pkg.	**$4.40**	**$4.15**	**$3.90**
3-lb. pkg.	**5.50**	**5.25**	**5.00**
4-lb. pkg.	**6.60**	**6.35**	**6.10**
5-lb. pkg.	**7.70**	**7.45**	**7.20**
CLOVERLINE HYBRID QUEENS	**1.70**	**1.60**	**1.50**

Shipments begin March 20th.

CLOVERLINE APIARIES

Phone 3-6656

P.O. Box 5126 **Columbia, S. C.**

York's Quality Bred Package Bees and Queens

Reg. U.S. Pat. Off.

The Preference of Leading Honey Producers
Your Choice of

Packages with Starline Queens				Packages with Italian Queens			
Quantity	1-24	25-99	100-up	Quantity	1-24	25-99	100 up
2-lb.	$4.55	$4.30	$4.05	2-lb.	$4.25	$4.00	$3.75
3-lb.	5.65	5.40	5.15	3-lb.	5.35	5.10	4.85
4-lb.	6.75	6.50	6.25	4-lb.	6.45	6.20	5.95
5-lb.	7.85	7.60	7.35	5-lb.	7.55	7.30	7.05
Extra Queens				Extra Queens			
Starline	1.70	1.60	1.50	Italian	1.40	1.30	1.20

Queenless packages — deduct $1.00 per package
Tested Queens, add $1.00 per package or extra queen

TERMS: Shipments are made FOB Jesup by express, parcel post, or your truck. Bees are certified bees from our own apiaries, state registered, and state inspected. If convenient, small orders cash, and larger orders $1.00 deposit per package with balance payable two weeks prior to shipment.

York Bee Company Jesup, Georgia

(The Universal Apiaries)

P. O. Box 300 412 W. Orange St. Phones 3522, 3320

(Continued from page 249)

the Raritan River in New Jersey. They looked somewhat like these."

White Spanish Needles grow through most of the orange groves in Florida where they bloom all winter. They are visited by bees chiefly in the winter and yield a reddish honey with a fair flavor. When the oranges come into bloom, I believe Spanish Needle is rarely visited by bees since orange blossoms yield so much nectar.

Mr. Haug adds that the early blooming honeysuckle is called "weather plant" in Charlottesville, Virginia, due to the fact that it will bloom during the winter on warm days but stop during freezing weather. This honeysuckle is called fragrant honeysuckle by many horticulturists because the flowers have considerable odor. He adds, "I have several plants from cuttings that have reached eight feet and have bloomed from November to May depending on the weather. It was shown to a Japanese friend and she said it grew back home in Japan." This species is also called "breath-of-spring" in the Carolinas. Bees work it heavily on warm days and it must be most valuable for stimulating early brood rearing.

A Modern Theory on Swarming

Don't expect queen bees to overwork themselves. They will only prepare to swarm. Details in booklet sent for 25c coin.

W. F. PERSCHBACHER
9620 107A Ave. Edmonton, Alta., Can.

OLDEST BEE JOURNAL IN THE ENGLISH LANGUAGE

Keep up on markets, practices, scientific data, regulations and plant possibilities.
1 year, $2.00, U. S. and Canada
Foreign postage, 50s a year extra

AMERICAN BEE JOURNAL
Hamilton, Illinois

THE AUSTRALASIAN BEEKEEPER
The senior beekeeping journal of the Southern Hemisphere provides a complete cover of all beekeeping topics in one of the world's largest honey producing countries. Published monthly by Pender Bros. Pty. Ltd. Box 20, P. O., Maitland, 3N, N.S.W., Australia. Subscription by Bank Draft or International M. O. 18/-(approx. $2.15) per year, post free. Sample copy free on request.

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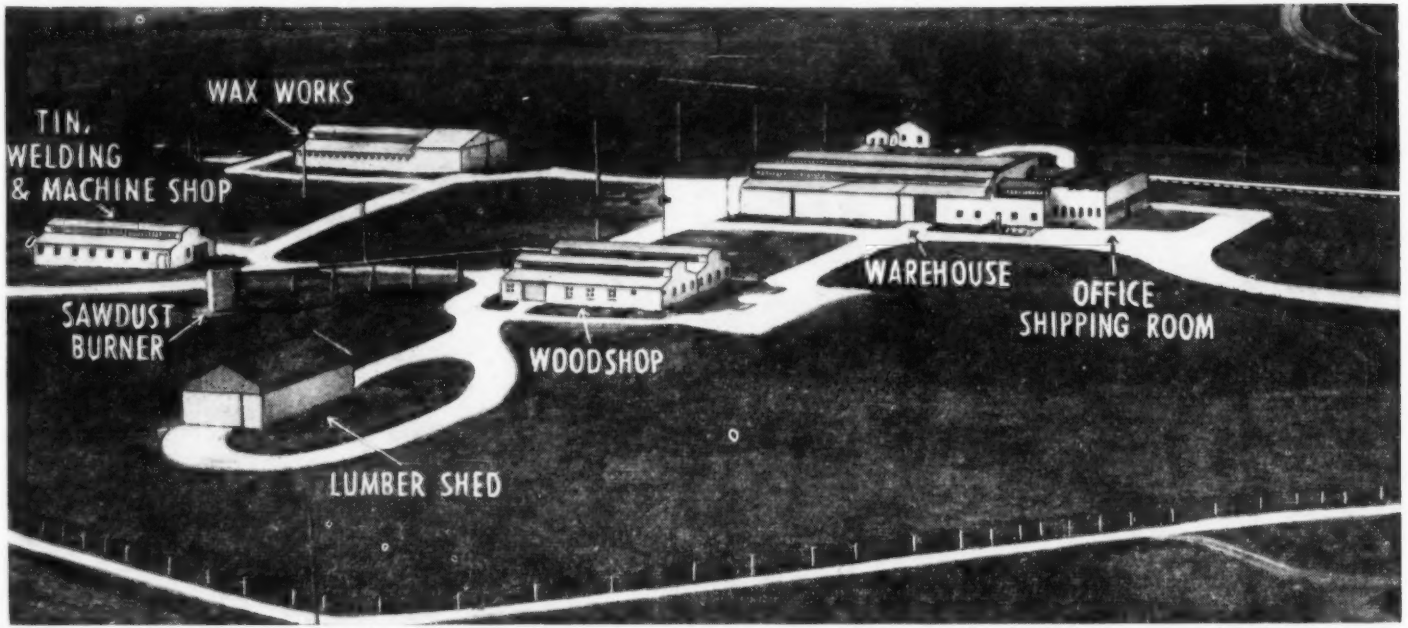

THIS IS A RECENT airplane view of our beehive factory and the surrounding grounds. In the far upper right-hand corner you will see U. S. 62 and Illinois Central Railroad that pass directly in front of our plant. You have no parking problem at our plant because it is located on a 100-acre farm, 1½ miles west of Clarkson. All of the wooden goods listed in our catalog are manufactured in the building marked WOOD SHOP. All of our comb foundation is manufactured in the building marked WAX WORKS. In the TIN and WELDING SHOP we manufacture our hive loaders, our two wheel trucks, our honey extractors, tanks, double boilers, and many other items.

We are large operators, buying our lumber direct from the western mills, our steel direct from the mills, and our wax direct from you beekeepers. We do not sell through dealers but direct to you beekeepers, so our prices are surprisingly low on the highest quality equipment. We have just mailed out our 32nd annual catalog and if you did not receive one write at once for your free copy, which contains 64 pages, the largest bee supply Catalog published.

THE WALTER T. KELLEY COMPANY **Clarkson, Ky.**

XUM

PROD

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PRODUCTION OF CHUNK HONEY

(Continued from page 203)

If one has clean extracting supers, they can be placed on top of chunk honey supers, but under no condition should one place old, dark, and dirty combs above chunk honey supers. If this is done, much of the dark wax particles that bees chew out of the old combs will be incorporated into the wax of the chunk honey supers below, making dirty looking combs. As a rule we take off chunk honey supers about the time they are finished, though this cannot always be done. In taking off chunk honey supers, if they are stuck with much burr comb, the supers should not be pried off, but rather twisted off. If pried off when the bottom bars are stuck the comb may be broken where it pulls away from the bottom bar. Twisting will help prevent the comb cracking where the bottom bars are stuck down.

When the combs are brought home to the honey house, it is well to fumigate them in an air-tight room if possible, though it is a rare beekeeper who has such facilities. We do not fumigate our supers and at times there is some loss from wax-moth damage. Another thing we do when stacking the full supers of honey is to stand them on end with the combs in a verticle position. If supers are stacked as they are on a hive, there is trouble with honey leaking on the combs unless newspapers are used between each super. By stacking the supers on their ends, it prevents this trouble.

While this is only a brief outline; it does bring out a few of the more important things to look for should you be interested in the production of chunk comb honey.

Buy U. S. Savings Bonds
They come in all sizes . . . .

The New Zealand Beekeeper
The Quarterly Magazine of the National Beekeepers' Association of New Zealand. Better Beekeeping—Better Marketing. Subscription, 8 shillings per year, payable to
THE GENERAL SECRETARY
Box 19 Foxton, New Zealand

We sell quality bred Italian Queens and package Bees
Italian Queens $1.25
3-lb. pkg. Bees with Queen, $6.00
Postage Paid Delivered to You.
We are always in the market for Quality Honey.
Send sample.
THE FRED W. MUTH CO.
2315 Florence Avenue,
Cincinnati 6, Ohio
Phone: AVon - 1 - 5583

NORMAN BROS.
Bright 3-Banded Italians
NOW READY. Fine quality bees and dependable service. We guarantee health certificate, full weight, safe arrival.
34 YEARS AS SHIPPERS

— PRICES —	1-11	12-100
2-lb. pkg. with queen	$4.00	$3.75
3-lb. pkg. with queen	5.00	4.75
Untested queen	1.10	1.00

Package bees F.O.B. Express. If by Parcel Post, add postage.
NORMAN BROS. APIARIES
Ramer, Ala.

FLOWERS' QUALITY ITALIANS
THAT STAND TEST FOR HONEY GATHERERS: Gentle, prolific, bred from hives making 300 pounds or over of honey. Fumagillin-fed grafting and queen yards. Health certificate with each shipment. We are better prepared to serve you with both packages and queens. COME AFTER YOUR BEES, or shipped express or P.P. Prompt live delivery guaranteed. Small orders cash; large orders, $1.00 deposit per package; balance two weeks prior shipping date. Queenless packages, deduct $1.00 per package.

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As this magazine goes to press the season on our bee farm is two weeks earlier than normal and it now appears that we will have bees and queens ready for shipment about March 15th. If you need bees and queens early contact us.

THE WALTER T. KELLEY CO. Clarkson, Ky.

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